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ENVIRONMENTAL STATEMENT

DRAFT



**Twisp-Winthrop-Conconully
Planning Unit
Land-Use Plan
December 1975**

U.S. Department of Agriculture
Forest Service
Okanogan National Forest



AD-53 Bookplate
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GLOSSARY

- Commercial Forest Land - Forest land which is producing or capable of producing crops of industrial wood and are available for harvest. This includes areas suitable for management to grow crops of industrial wood generally of a site quality capable of producing in excess of 20 cubic feet per acre of annual growth. This includes both accessible and inaccessible areas. Permanently inoperable or nonstockable areas are excluded because they are not suitable for silvicultural management. Conversely, nonstocked areas which are stockable and otherwise meet this definition are included.
- Inventoried Roadless Area - Areas inventoried by the Forest Service in a nationwide review as (1) unroaded and undeveloped and of 5,000 acres or larger; or (2) smaller areas which join designated Wilderness or Primitive Areas.
- Off Road Vehicle (ORV) - Any motor driven vehicle designated to travel cross country. This includes 4-wheel drive rigs, motorcycles, snowmobiles, etc.
- Visitor Day - A term of measurement for recreation use. Consists of a total of twelve hours of recreational use. Could be one person for twelve hours or twelve people for one hour; either continuous or intermittent.

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USDA FOREST SERVICE ENVIRONMENTAL STATEMENT

TWISP-WINTHROP-CONCONULLY PLANNING UNIT

LAND-USE PLAN

Prepared in Accordance with

Section 102(2) (C) of Public Law 91-190

Responsible Official: Forest Supervisor
Okanogan National Forest
P. O. Box 950
Okanogan, WA 98840

Summary Sheet

- I. Draft (X) Final ()
- II. Agency, Okanogan National Forest, Forest Service, USDA
- III. Administrative (X) Legislative ()
- IV. Brief Description of Action

The Twisp-Winthrop-Conconully Planning Unit includes about 1,478,000 acres of National Forest lands lying in Okanogan, Chelan, Skagit and Whatcom Counties, Washington. Through a land-use planning process the Forest Service divided the Planning Unit into areas with different management objectives. The overall objective of the Land-Use Plan is to provide for the best use of the land in relation to the needs and wants of the public.

V. Summary of Environmental Impact and Adverse Environmental Effects

The Land-Use Plan proposes development and intensive resource use of over 250,000 acres of the Planning Unit's 587,000 acres of Inventoried Roadless Areas. Access will be improved in many parts of the Planning Unit. The Land-Use Plan provides for a sustained timber harvest of 60 million board feet (MMBF) of timber annually from the Planning Unit. If no action were taken, a sustainable annual harvest of 38 MMBF would be possible due to the limited amount of land available for timber management.

The proposed action will result in a drop of 5 million board feet of timber below the amount currently planned for harvest from the Planning Unit. As a result, local employment could be reduced by as much as 75 jobs. Minor long-term social and cultural changes could result.

Additional road building and timber harvesting will cause and allow wider spread impacts of man's activities and uses throughout the Planning Unit. Adverse impacts to air, soil and water resources will result. Lands occupied by roads will be removed from production. Certain roadless areas will be developed and will no longer meet the undeveloped requirement needed for consideration as Wilderness.

VI. List of Alternatives Considered

1. No Action - Alternative A
2. Greatest Amount of Areas Studied for Wilderness - Alternative B
3. Greatest Amount of Renewable Resource Production - Alternative C
4. Proposed Action - Alternative D

VII. List of Federal, State and Local Agencies from Which Comments Have Been Requested

A. Federal Agencies

1. Advisory Council on Historic Preservation
2. Agricultural Stabilization and Research Service
3. Bonneville Power Administration
4. Bureau of Land Management, Spokane
5. Bureau of Outdoor Recreation, Seattle
6. Bureau of Reclamation, Boise, Idaho
7. Bureau of Sport Fisheries
8. Corps of Engineers, North Pacific Division
9. Department of Housing and Urban Development
10. Department of Interior, Office of Environmental Project Review
11. Economic Development Administration
12. Environmental Protection Agency, Director, Region 10
13. Federal Power Commission
14. National Park Service, Regional Office, Seattle
15. National Park Service, North Cascades National Park
16. Office of Program Planning and Fiscal Management, State of Washington
17. Pacific Northwest River Basins Commission
18. Publications Stockroom, Office of Communications
19. Soil Conservation Service, State Conservationist for Washington
20. U. S. Geological Survey

B. Federal Congressional Delegation

21. Senator Henry M. Jackson
22. Senator Warren G. Magnuson
23. Representative Joe Prichard - District 1
24. Representative Lloyd Meeds - District 2
25. Representative Don Bonker - District 3
26. Representative Mike McCormack - District 4
27. Representative Tom Foley - District 5
28. Representative Floyd Hick - District 6
29. Representative Brock Adams - District 7

C. State of Washington

30. Department of Ecology, Olympia
31. Department of Game, Olympia
32. Department of Natural Resources, Olympia
33. Department of Parks and Recreation (State Historic Preservation Officer)

34. Interagency Committee for Outdoor Recreation, Olympia
35. Office of the Governor, Olympia
36. Office of the Governor, Wilderness Task Force, Olympia (State Clearing House)
37. State Legislators for Chelan, Okanogan, Whatcom and Skagit Counties
38. Washington State University, College of Forestry

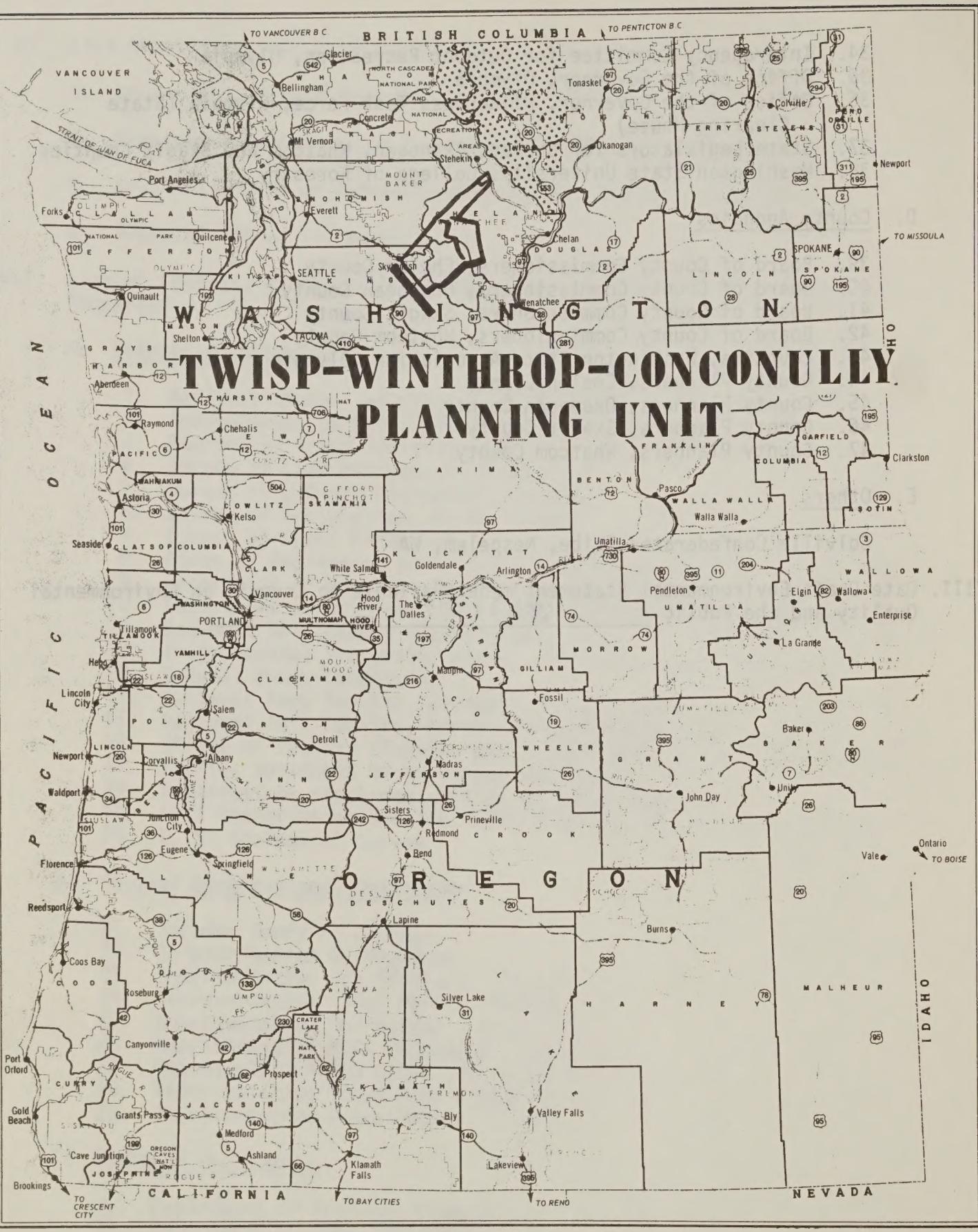
D. County Agencies

39. Board of County Commissioners, Chelan County
40. Board of County Commissioners, Okanogan County
41. Board of County Commissioners, Skagit County
42. Board of County Commissioners, Whatcom County
43. Counties, Washington State Association, Olympia
44. County Planners, Chelan County
45. County Planners, Okanogan County
46. County Planners, Skagit County
47. County Planners, Whatcom County

E. Others

Colville Confederated Tribe, Nespelem, WA

VIII. Date Draft Environmental Statement made available to Council on Environmental Quality and the Public JAN 12 1976.



U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
John R. McGuire, Chief

NATIONAL FORESTS
OF THE
PACIFIC NORTHWEST REGION

USFS R-6 1974

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DESCRIPTION

I. DESCRIPTION

A. Proposed Action

1. Purpose - The purpose of the Land Use Planning is to set future land use management direction on the National Forest lands of the Twisp-Winthrop-Conconully Planning Unit of the Okanogan National Forest.
2. Origin of Proposal - The proposal resulted from the Land Use Planning process started in the spring of 1973. A catalyst to the land use planning effort was the Forest Service's direction to develop an environmental statement on any plan or proposal which would adversely affect the wilderness character of any inventoried roadless area.
3. Objective - The objective of land use planning is to search for and recommend suitable and desirable land uses for the Planning Unit. Land capabilities and the public's desires are the land use planner's guidelines.
4. Need for Action - The proposed action will insure compatible uses on Federal lands within and adjacent to the Planning Unit. It will fulfill the Forest Service's commitment to file an environmental statement prior to developing any inventoried roadless area and permit entering and using the renewable resources in some of these areas. Entering some of the roadless areas will allow a continuing and orderly flow of resources from the Planning Unit.
5. Proposal - The Forest Service recommends the following proposal for the future management of the Planning Unit. The Proposed Action, also called Alternative D, will give a good balance between producing renewable resources of wood, water, and forage, plus retaining undisturbed, the scenery of the North Cascades. A comparison of acres and estimated outputs for each alternative can be found at the start of the discussion on alternatives.

The proposed action recommends dividing the Planning Unit into nine different management areas. The land uses in each area will depend upon the management objectives for that area. A narrative description of the proposal follows.

- a. New Study Area - Areas to study for possible inclusion into the National Wilderness Preservation System. New study areas will be managed to protect their wilderness characteristics until detailed studies can be completed and a recommendation accepted for their classification as Wilderness or for other purposes.

DESCRIPTION

Proposed Action

No action will be undertaken in New Study Areas that will change their wilderness characteristics, including harvesting timber, building roads, vegetative type changes, or building other permanent improvements that would not be allowed in established Wilderness.

The proposed action calls for two new Wilderness Study Areas. The two areas were originally identified as the Long Swamp and Long Draw Roadless Areas. Long Draw was later combined with the Fourteenmile Roadless Area in the nation wide review.

The Wilderness Act of 1964 defines wilderness as "an area where earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." The Act further qualifies wilderness as:

- (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man substantially unnoticed;
- (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation;
- (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition;
- (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

"Long Draw" is a north-south tier of sections containing 2800 acres contiguous to the east boundary of the Pasayten Wilderness. Originally identified separately by the Forest, Long Draw was combined into the Fourteenmile Roadless Area Number 808 in the National RARE Environmental Statement. A relatively high area, 5200 to 7400 feet, made more rugged by canyons carved by streams flowing east from the Pasayten Wilderness. The area lies in the alpine and subalpine zones.

Great variety of wildlife habitat types distinguishes the Long Draw area. From the subalpine slopes of Goodenough Peak south to Long Draw canyon, up the rocky slopes of Horseshoe Mountain and down to the thickets of Hells Hole, to the large openings of Deer Park. Lodgepole thickets, large Englemann's spruce, hardwoods, sagebrush and grassy openings, all tied to sharp changes in elevation and exposure, make for a rich mosaic of habitats.

Ptarmigan and the horned lark are common nesters on the alpine ridges of Horseshoe Mountain. Yellowbelly marmots, hoary or whistler marmots, and the small rat size pika share the rocky slides of Horseshoe mountain. Blue grouse, spruce grouse, ruffed grouse, several species of woodpeckers, and innumerable song birds

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Okanogan National Forest
P.O. Box 950
Okanogan, Washington 98840

8400
January 12, 1976



To Reviewer:

Under the provisions of Section 102(2)(c), Public Law 91-190, the National Environmental Policy Act of 1969, we have prepared a Draft Environmental Statement for the Land-Use Plan for the Twisp-Winthrop-Conconully Planning Unit for the Okanogan National Forest.

The statement evaluates the results of managing the Twisp-Winthrop-Conconully Planning Unit as proposed in the Land-Use Plan.

We offer this statement for your review and comment. Replies received will be considered in preparing the Final Environmental Statement. We will need any reply you wish to make by March 12, 1976.

Sincerely,

A handwritten signature in cursive ink that reads "Gerhart H. Nelson".

GERHART H. NELSON
Forest Supervisor

Enclosure

/

DESCRIPTION

Proposed Action

are found in the forests. Bald and Golden eagles and about eight species of hawks are not uncommon.

The East West drainages of Long Draw, Hells Hole, and Deer Park Creek are important migratory routes for mule deer in and out of summer range in the high country.

Lynx and cougar, bear, and bighorn sheep are occasionally found in the area.

The nearest road ends 2 miles southeast of Long Draw. Three low standard trails pass through Long Draw into the Wilderness. Present recreation use is low and opportunities for solitude are high.

Long Draw is part of a grazing allotment. About 1,000 acres produce useable forage. Timber potential is very low, less than 200 MBF (.2 MMBF) could be harvested annually if the area were managed solely for timber production.

The Long Swamp New Study Area lies between the Toats Coulee Road and the southern boundary of the Pasayten Wilderness. It includes all the original Long Swamp Roadless Area, number 814, less the part between the Middle Fork of Toats Coulee Creek and the Iron Gate Road. This New Study Area totals about 18,300 acres.

Most of the area is above 5,000 feet in elevation. The rough steep-walled canyon carved by the Chewack River reaches the lowest point just above Thirtymile campground at 3600 feet.

The Long Swamp New Study Area contains fewer different vegetation types than Long Draw. As a result, less variety and density of wildlife can be found here.

Recreation use remains relatively light. The greatest use occurs along the Chewack River Trail which leads to the Pasayten Wilderness from Thirtymile Camp. Trees cover most of the area quickly insulating the visitor from the road along the southern boundary.

All of this New Study Area, except the Chewack River canyon, is included in grazing allotments. Most of those areas within the allotments produce fair to good forage. Lodgepole pine cover nearly two-thirds of the area. Douglas fir, some ponderosa pine and other species cover another third. Rocky areas and meadows occupy a small part of this New Study Area. Timber values range from low to medium for this New Study Area. If managed solely for timber production, this New Study Area could produce close to a million board feet (1 MMBF) annually. These two new study areas total about 21,100 acres.

- b. Recreation Use Area--Roaded - These areas will be managed principally for general recreation use with other uses of resources designed to protect the recreational attractions of the area.

DESCRIPTION

Proposed Action

Emphasis is on providing recreational opportunities in a forested setting. Most of the existing and potential picnic and campground areas will be in this area. These recreation developments would be designed to protect sites, distribute users and blend into the forest environment.

Timber harvest is permitted and will be designed or modified to protect recreational attractions of the area.

Livestock grazing, grazing improvements, watershed improvements, wildlife habitat improvements, fire management activities and other land uses will be designed or modified to protect and blend in with the recreational attractions of the area.

Roads may be built to meet recreation and other resource needs.

In the Proposed Action, these areas lie along the Twisp, Methow, and Chewack River bottoms and the Eightmile and Salmon Creek drainages. Other areas included are the Loup Loup Summit and Ski Area, plus the Alta Lake Coulee. These areas will be managed primarily for road access recreation. Heavy recreation use occurs in these areas now and will continue in the future. Nearly all of the present and future auto access campgrounds lie in these areas.

These areas total about 30,200 acres.

- c. Recreation Use Area--Unloaded - Managed principally for general forest recreation use, with other uses of resources designed to protect the recreational attractions of the area.

Emphasis will be towards providing recreational opportunities in a forested setting. Any recreational developments would be designed to protect sites, distribute users and blend into the forest environment.

Road building not permitted.

Timber harvest is permitted and will be designed or modified to protect recreational attractions of the area. Timber harvesting will be by systems not needing roads. Logging systems using cables, balloons and helicopters will all be considered.

Livestock grazing, grazing improvements, watershed improvements, wildlife habitat improvements, fire management activities and other land uses will be designed or modified to protect and blend in the recreational attractions of the area.

Unloaded Recreation Use Areas in the Proposed Action join some of the more ruggedly scenic country within the Planning Unit.

DESCRIPTION

Proposed Action

Shallow soils combined with steep slopes weighed heavily in deciding many of these areas should remain unroaded. These areas will provide roadless recreation opportunities along with allowing full use of the other forest resources.

Approximately 74,000 acres will be managed under the Recreation Use Area, Unroaded guidelines.

- d. Scenic Area--Roaded - Managed principally for general forest recreation. These areas may include developed campgrounds and recreational road developments. However, much of the area will be managed to provide recreation opportunities in a near-natural setting.

Timber removal is not permitted except as needed for user safety, recreational developments or maintenance, improvement of the visual resources, reduction or prevention of disease or insect damage. (An environmental analysis will be made of any proposal to remove timber from these areas. An environmental statement, subject to public review, will be made prior to any timber removal that will significantly affect these areas as called for in the Forest Service Manual 8411.43.) Livestock grazing, grazing improvements, watershed improvement work, wildlife habitat work, fire management activities and other land uses will be permitted. All activities or developments will be designed or modified to protect and blend in with the recreation attractions of the area.

Formal dedication of these areas will follow the guidelines found in Title 36, Code of Federal Regulations, Part 294.1(a) (36 CFR 294.1(a)). See Appendix B. Final establishment of Scenic Areas will first require an approved plan. The plan will spell out the types of occupancy and use allowed, identify the boundaries and tell how these scenic areas will be managed.

In the Proposed Action, these areas will allow roaded area management along existing road corridors through the large scenic roadless areas. They include about 7,200 acres along the Harts Pass Road and the North Cascades Highway. These areas will be managed for both the road users and/or jumping off spots for those going back into the Scenic Roadless Areas.

- e. Scenic Area--Unroaded - Managed principally for general forest recreation in a near-natural setting. These areas may include primitive campgrounds designed mainly for site protection and to provide sanitation facilities and safe water for the user.

Roads are prohibited.

Timber removal is not permitted except as needed for user safety, recreational developments or maintenance, improvement

DESCRIPTION

Proposed Action

of the visual resources, reduction or prevention of disease or insect damage. (An environmental analysis will be made of any proposal to remove timber from these areas. An environmental statement, subject to public review, will be made of any timber removal that will significantly affect these areas as called for in the Forest Service Manual 8411.43.)

Livestock grazing, grazing improvements, watershed improvement work, wildlife habitat work, fire management activities and other land uses will be permitted. All activities or developments will be designed or modified to protect and blend in with the recreation attractions of the area.

Formal dedication of these areas will follow the guidelines found in Title 36, Code of Federal Regulations, Part 294.1(a) (36 CFR 294.1(a)). Final establishment will await an approved plan as in the Scenic Area, Roaded.

The Forest Supervisor plans to recommend four separate Scenic Areas. These will be the Tiffany Scenic Area with about 18,000 acres; the Pasayten Rim Scenic Area from Thirtymile on the Chewack to Lost River totaling 36,000 acres; the Liberty Bell Scenic Area from Lost River to the Twisp River with over 200,000 acres; and the Sawtooth Scenic Area taking in the North Creek Drainage down to South Navarre with some 70,000 acres.

These last two Scenic Areas, Liberty Bell and Sawtooth, join other Federal lands. The Sawtooth joins Wenatchee National Forest's proposed Lake Chelan Scenic Area, along with the Lake Chelan National Recreation Area and North Cascades National Park, administered by the National Park Service. The Liberty Bell Scenic Area has a common boundary with the North Cascades National Park and the Ross Lake National Recreation Area. The probable administration of these adjoining lands was considered in arriving at the Proposed Action. The Sawtooth-Lake Chelan Scenic Area will be planned and designated as one scenic area, totaling over 200,000 acres. This Scenic Area, along with the Liberty Bell Scenic Area, will complement the expected wilderness classification of most of the adjacent National Park and National Recreation Area lands.

- f. Timber Management Area - These areas will be managed primarily for the production of timber and forage. Logging systems and methods used to encourage timber and forage growth will be determined by the conditions of each site. Other forest uses permitted as long as they are compatible with the production of timber and forage.

Timber Management Areas form the central core of the Planning Unit. They typically occupy the mid-range elevations from 2,500-5,500 feet of the Planning Unit. Some higher elevation lands fall into this area. Most of these high-elevation lands lie between the Tiffany Mountain area and the Loup Loup Summit.

DESCRIPTION

Proposed Action

From the Timber Management Areas will come the bulk of the Planning Unit's renewable resources. A transportation system will be developed and maintained to serve these resource needs.

A great deal of recreation use will occur within the Timber Management Areas. Most of the hunting and off road vehicle use is expected to take place within these areas.

A number of inventoried roadless areas will be included in Timber Management Areas under this proposal. Those falling entirely within Timber Management Areas include the South Ridge, Beaver Creek, Granite Mountain, Black Canyon and Hungry Creek Roadless Areas. Lesser parts of the following roadless areas will now be included in Timber Management areas: Falls Creek, Tiffany Mountain, Midnight Mountain, and Twisp River. A total of 415,600 acres of the Planning Unit fall in Timber Management Areas.

- g. Watershed Area - Managed primarily for the production of high quality water. Goals will be to maintain water quality and increase water quantity, if desired, downstream for irrigation and power uses. Other activities include timber harvest, recreation and grazing permitted where appropriate.

This area lies along the long high-elevation ridge from southwest of Tiffany up to the Pasayten Wilderness boundary. This area is also known as the Meadows Area.

Most of the Fourteennmile and the Twentymile plus part of the Thirtymile roadless areas lie in this area.

Dense stands of lodgepole pine occupy much of this area. Thick stands of trees with many down logs hinder travel by man and domestic stock throughout much of this area. Spruce and sub-alpine true fir occur along the water courses. These latter areas are typically more open and make a natural cross-country travel route. This area drains into the Chewack, Sinlahekin, and Toats Coulee water courses all of which are tapped for irrigation. The total area is around 79,100 acres.

- h. Wilderness - Manage all uses and activities in conformance with the Wilderness Act, September 3, 1964. Recreation use, including hunting and fishing is permitted in Wilderness. The use of motorized vehicles or motorized equipment is generally excluded in Wilderness. The Wilderness Act recognizes livestock grazing as a proper use. Mineral prospecting and claim location is permitted through 1983.

The Pasayten boundaries remain unchanged. The outcome of the New Study Area studies will determine if any additional area will be included in the Wilderness. The area within the Wilderness now totals about 505,500 acres.

DESCRIPTION

- i. Wildlife Management Area - Areas to be managed principally for wildlife habitat, for unique, endangered or game species. All other resource uses will be permitted to the extent these activities and uses are not detrimental to the management objectives. All uses and activities will be designed and/or scheduled to maintain or improve the areas ability to support wildlife populations.

These are lower elevation lands and as such lie along the Planning Unit borders. They have been identified as important winter range for deer and/or main nesting areas for blue grouse. No endangered species habitat has, as yet, been identified on the Planning Unit. Management efforts will be directed toward maintaining these important habitat areas. They total approximately 29,200 acres within the Planning Unit.

- j. Allocation of Inventoried Roadless Area Lands - A total of 575,000 acres in 23 roadless areas were inventoried during the Roadless Area Review and Evaluation (RARE) of the early seventies. Another three areas, totaling 12,310 acres, were inventoried later. A total of 587,310 acres of roadless lands are within the Planning Unit.

The map titled Unroaded Areas shows the Roadless Area location. Appendix I shows the allocation of the Roadless Areas to Management Units. A brief description of each Roadless Area can be found in Appendix J.

History

B. History

Forest Establishment and Administration Boundaries - The Washington Forest Reserve was set aside by several presidential proclamations between 1897 and 1905. All of the present Okanogan National Forest lies within the original reserve boundaries.

Other significant historical events include the establishment of the North Cascades Primitive Area in 1935. The North Cascades Primitive Area included what is now much of the northern part of the North Cascades National Park and the Ross Lake Recreation Area along with much of the present Pasayten Wilderness.

In 1963 the Department of Interior and Department of Agriculture started a joint team to study the North Cascades. That team recommended establishment of a North Cascades National Park. Public Law 90-54 established the North Cascades National Park and the Pasayten Wilderness. The last major change in the National Forest lands administered by the Okanogan National Forest followed creation of the Park. The Okanogan accepted administration of parts of the Mt. Baker and Wenatchee National Forests. Those areas are part of the Planning Unit.

DESCRIPTION

Present Environment

In 1971 the Forest Service started the Roadless Area Review and Evaluation (RARE). The purpose of RARE was to inventory all undeveloped National Forest Areas of 5,000 acres or larger, and to identify those to study for possible inclusion into the Wilderness Preservation System. A total of 26 roadless areas totaling 587,300 acres have been inventoried in the Planning Unit. Following collection of public opinion the Forest Supervisor in 1972 recommended that no Roadless Areas on the Okanogan National Forest be studied for Wilderness. As a result, no New Study Areas were established during the RARE Study.

In September 1972 the North Cascades Highway opened to public traffic. Opening of the highway culminated a search lasting over half a century for a route crossing the North Cascades.

The effort behind the Twisp-Winthrop-Conconully Planning Unit started in the spring of 1973. Four thousand brochures covering the resource information for the Planning Unit and asking for public response were distributed during the summer of 1974. Following analysis of the public's reply to the planning brochure, the Forest Service decided upon the program described in the first part of this statement. Appendix E summarizes the comments received as a result of the brochure.

C. Present Environment

1. Location - The Twisp-Winthrop-Conconully Planning Unit includes three of Okanogan National Forest's four Ranger Districts. Tonasket District, with 227,634 acres of National Forest land, will be studied separately.

Canada borders the Planning Unit on the north. Other public lands, including the Ross Lake National Recreation Area, North Cascades National Park and the Lake Chelan National Recreation Area along with the Wenatchee National Forest, join the Planning Unit on the west side. State and private lands lie along the rest of the Planning Unit's borders in the Okanogan and Methow drainages.

The Okanogan National Forest had the responsibility to administer all National Forest lands in the Planning Unit. The administration of certain National Forest lands lying south and west of Alta Lake was transferred to the Wenatchee National Forest in 1974. These latter lands will remain in the Planning Unit for this initial planning effort.

Lands of four counties and three forests lie within the Planning Unit. The following chart shows the official National Forest acreage in each county and the National Forests involved.

DESCRIPTION

<u>County</u>	<u>Acres</u>	<u>National Forest</u>
Okanogan	1,271,626	Okanogan
Whatcom	160,907	Mt. Baker-Snoqualmie
Skagit	36,462	Mt. Baker-Snoqualmie
Chelan	9,012	Wenatchee
TOTAL	1,478,007	

When considering any acreage figures given in this statement one should keep in mind that 80% of the Planning Unit remains unsurveyed. Acreages of unsurveyed lands came from Bureau of Land Management protraction surveys (map surveys) done in 1964.

2. Topography, Geology and Soils - These three physical land features are interrelated and will be considered together.

The Planning Unit contains a bewildering assortment of landscape features, geologic rock types and complex soil patterns. Landforms vary from flat river valleys to precipitous mountain headwalls. Elevations range from 1,163 feet at Alta Lake to the 9,066 foot summit of Jack Mountain in the Pasayten Wilderness. Geologic complexity is enormous. Many rock types are represented and over 300 million years of the geologic record is represented in the Unit. Uplift of the Cascades Range resulted in extensive folding and faulting of the rocks. More recently, alpine glaciers and several episodes of continental glaciation have shaped the existing topography.

Soils are formed as a result of five principal factors: vegetation, topography, bedrock, climate, and time. The complex soil patterns exist primarily because of the wide range of geologic, climatic, and topographic conditions which change rapidly over short distances. Appendix H describes the types of land areas found in the Planning Unit. These land areas were put on maps and used in the Land Use Planning process.

All of the Planning Unit, except the eastern edge, lies in what is known as the Northern Cascades Physiographic Province. A physiographic province is defined as an area which has similar landscape features. This particular province is characterized by unusually deep, U-shaped valleys carved between steep, highly dissected Alpine-like ridges and peaks. Most ridges and peaks have typical alpine glacial features like cirques, cirque lakes, knife-edged ridges, and steep, pointed peaks. Avalanche chutes or troughs are common along valley sideslopes near the Cascade Crest.

Geologically, the province is extremely complex. A belt of NW-SE trending sedimentary and volcanic rocks laid down during the Cretaceous Period (65 to 136 million years ago) have been subsequently uplifted and intruded by granites. The sedimentary and

DESCRIPTION

volcanic rocks have been metamorphosed and are generally highly folded, faulted, and tilted from their original horizontal position. Eightmile Creek, Twisp River, and Middle Fork of the Pasayten River are aligned along major faults.

Soils developing from granites, glacial drift, and sediments are generally coarse textured and tend to be poorly developed. They may be shallow to deep. Soils developing in material derived from volcanic rocks are usually shallow, medium textured, and show some profile development.

The eastern portion of the Planning Unit lies in the Okanogan Highlands Physiographic Province. The landscape is characterized by moderate slopes and broad, rounded summits. It is a striking contrast to the rugged topography of the Northern Cascades. The province is made up of several upland areas separated by the north-south oriented valleys of the Chewack River and Okanogan River.

Virtually all of the province was affected by the grinding action of glacial ice during the Pleistocene epoch. As a result of glacial activity, some areas have been denuded of all soil cover. In other areas, deposits of glacial drift are found which may be as much as 100 or more feet thick.

Within the Planning Unit, geology is somewhat less complex in the Okanogan Highlands Province than in the Northern Cascades Province. The predominant rock type is granite. Other rock types include andesite, basalt, marble, quartzite, the conglomerate. A thin layer of pumice and volcanic ash mantles the southern part of the Unit.

Soils often have either deep to extremely deep profiles developing from glacial drift or shallow profiles developing in residuum from granite or other rock. Soils tend to be light-colored, coarse textured, and stony.

3. Climate - The Planning Unit includes both eastern and western slopes of the Cascade Range. Elevations range from near 1,000 to over 9,000 feet. The climate varies from near desert conditions at Alta Coulee to a moist alpine type along the Cascade Crest. The Unit possesses climate of both coastal and inland characteristics. This is because the high ridges of the Cascades intercept prevailing westerly winds and disrupts the path of Pacific storms. Normally, warm and moist air moves eastward toward the Cascade Crest. As it reaches the high elevations it cools and drops rain along the windward slopes. Air descending along the leeward slope is warmed by compression. This causes a sharp decrease in precipitation eastward. Average annual precipitation on the west slopes range from 60 inches near Ross Lake to 120 inches west of Rainy Pass. Precipitation drops off rapidly eastward to about ten inches near Alta Lake.

DESCRIPTION

Present Environment

- a. Winter Climatic Regime - During an average winter, snowpack ranges from 10 to 20 inches at lower elevations to over 100 inches near the crest. Snow usually covers the ground from mid-December until late February or March in the lower elevations of the Unit. At high elevations, snow can be expected to remain on the ground from October to June. Water content of the snow pack usually starts out at about 25%. It increases to 45% in the spring.

Normal eastward moving air masses are frequently interrupted by outbreaks of cold air from Canada. The outbreaks are usually of short duration. Occasionally very cold arctic air will settle in the area and unusually cold temperatures will prevail for two or three weeks.

Average maximum winter temperatures range from 25 to 35°F. Average minimum temperatures are from 5 to 15°F. Below zero temperatures, -15 to -25°F, can be expected.

- b. Spring, Summer and Fall Climatic Regimes - During this period, prevailing flow is from the northwest and west. Warmer and drier air masses generally begin in May, peak in July and August, and continue until late August or early September. Thunderstorms can be expected throughout the period. Rainfall frequently accompanies thunderstorms.

Average maximum temperatures are in the 60's and 70's with occasional 80+ degree days at higher elevations. At lower elevations temperatures range from 80 to 95°F. Occasionally, temperatures over 100°F are recorded. Minimums at higher elevations are in the 40's and 50's and at lower elevations minimums are in the 50's and 60's.

Summaries of weather recordings for Okanogan and Winthrop are in Appendix F.

4. Flora - The effect of elevational and climatic ranges is reflected in the life zones recognized in North Central Washington. They are present within the Planning Unit. These life zones frequently overlap at their upper and lower limits.

The grass-shrub zone lies generally under 3,000 feet in this Unit. It is characterized by bitterbrush, sage, cheatgrass, bunchgrass, and an occasional ponderosa pine. Precipitation is under 20 inches and is primarily from winter snows. Soils are generally rocky and well-drained.

The pine forest zone lies between 2,000 and 4,000 feet elevation and as the name implies, the zone is dominated by ponderosa pine in combination with Douglas-fir and other associated species.

DESCRIPTION

Present Environment

Common understory plants are ceanothus, balsam root, snowberry, erigonum, and several of the bunchgrasses. Precipitation ranges from 15 to 30 inches annually. Soils vary in depth and are well-drained.

The mountain forest (Canadian) zone is the principal timber producing land. East of the Cascade Crest, Douglas-fir and grand fir and western larch are characteristic, ranging in elevations of 3,000 to 5,600 feet. Extensive stands of lodgepole pine grow in this zone on areas of large fires in the past. The understory vegetation is largely pinegrass, although serviceberry, snowberry, and kinnikinnick are common. Precipitation is normally 20-50 inches in this zone. Soils vary greatly but are generally deep and well-drained. West of the Cascade Crest, this zone is characterized by western hemlock, pacific silver fir and western white pine. The elevation ranges are again approximately 3,600 to 5,600 feet. Precipitation is normally 55 to 75 inches annually. Soils are characteristically deep and well-drained.

The Hudsonian or sub-alpine zone is again a zone characterized by different dominate vegetation on either side of the Cascade Crest. The zone east of the Crest is characterized by Engelmann spruce, alpine fir, and lodgepole pine in elevation ranges of 5,000 to 7,400 feet. Pinegrass, huckleberry and American twinflower are common. Precipitation is from 35 to 65 inches. Soils tend to be shallow and have limited growth potential. West of the Crest, mountain hemlock and subalpine fir are common in elevation ranges of 5,000 to 7,400 feet. Precipitation is within 70 to 100 inches annually. Soils are shallow, well drained with limited growth potential at the upper limits of this zone.

The alpine zone is characteristically rugged with lakes and meadows common throughout the zone. Alpine larch and whitebark pine are typical. Heather, dwarf willow, and sedges dominate the understory and/or ground cover. This zone usually occurs at elevations in excess of 7,000 feet. Precipitation ranges from 60 to 120 inches annually. Soils are shallow and fragile, both plants and soils are slow to recover from disturbance.

Historically, fire has played a significant role in the ecology of the lands within the Planning Unit. The introduction of man's protection systems has altered the ecosystems. The protection has resulted in fuel buildups, both in standing living fuels, and dead, down debris. Also, century old ecosystems that were dominated by fire resistant species are being replaced by nonresistant species.

5. Fish and Wildlife - The Planning Unit offers diverse habitat and therefore supports an abundance of wildlife species. Most of the rivers, lakes and large streams support fish. The wildlife manage-

DESCRIPTION

ment job is a joint effort between the Forest Service and the Washington State Department of Game. The Forest Service manages the habitat, the Department of Game manages the wildlife populations.

The Department of Game also manages the sport fisheries. They maintain the stocking program, set regulations, and conduct studies of resident fish populations. The State Department of Fisheries likewise manages the salmon and is primarily concerned about maintaining spawning habitat and debris free channels, and facilitating downstream migration.

- a. Big Game - Mule deer are the most important big game species in the Planning Unit. Mule deer range over practically all habitat types and depend heavily on limited winter range areas at lower elevations. Recent low population levels in the mule deer herd led to a cooperative study by the Washington State Department of Game and the Okanogan National Forest. The 3-year study by Don Zeigler, Department of Game Biologist, has been extended and should help develop direction for managing this important species. White tailed deer are of minor importance within the Planning Unit as a game species because their distribution corresponds to the limited hardwood types along stream courses.

Mountain goats are present in moderate numbers throughout most of the higher more precipitous country and appear to be dependent upon certain fire successional vegetative types. They provide a moderate harvest through permit hunting and are of considerable esthetic importance to all groups of Forest visitors. California Bighorn Sheep have very limited distribution on the Planning Unit and provide quality-type hunting through a few annual permits. Moose occur sporadically through the northern portion of the Unit, but not in sufficient numbers to sustain hunting. Moose habitat is severely limited.

Black bear are abundant throughout the Planning Unit and have both game and non-game or esthetic value. Bear predation is of minor importance with the current low numbers of domestic sheep grazing the Unit allotments. Grizzly bears and their sign have recently been sighted near the Cascade Crest; their numbers are considered to be very low.

- b. Predators - Coyotes are the most abundant predators over the Planning Unit. Numbers are perhaps near an all-time high. A much smaller population of cougar appears to be distributed throughout the Planning Unit. Sign of Canadian Lynx can be seen in the northern part of the Planning Unit. Their numbers follow the cyclic peaks of the rabbit population.
- c. Game Birds - Blue grouse and Spruce grouse provide the bulk of the hunters bag with the larger blue grouse being the most sought after game bird. Both the spring nesting habitat and the winter roosting habitat are vulnerable to the influence of

DESCRIPTION

Present Environment

man's activities. Ruffed grouse inhabit hardwood types along lower elevation stream courses and provide a moderate harvest during the fall hunt. Chukars abound along the dry, rocky slopes of the lower Methow. Most prime chukar habitat lies below the National Forest boundary.

- d. Non-game Wildlife - Many non-game wildlife species which inhabit the Planning Unit are valuable in terms of pest control as well as for esthetic reasons. The birds of prey include both the northern bald eagle and golden eagle. The bald eagle winters in the Methow Valley, but is not believed to nest in the area. Ospreys are sometimes seen along the larger streams. The perigrene falcon, officially listed as endangered, has been seen in the Planning Unit in recent years.

The range of the Northern Spotted Owl may extend into the western part of the Planning Unit. The Spotted Owl requires an old growth coniferous forest habitat. Reduction of their habitat resulted in fewer spotted owls. No sightings of the Spotted Owl have been reported on the Planning Unit. Information regarding nesting habits of most raptors is extremely limited and little information is available regarding nest locations on the Planning Unit.

The Planning Unit accommodates roughly 180 species of non-game birds and about 60 species of non-game mammals. The grizzly bear, wolverine and fisher are among the most unique mammal species reported in the Planning Unit. The hermit thrush and boreal chickadee are present though rarely seen. The snowy owl, an occasional winter visitor, and pileated woodpecker represent the more unique varieties of birds seen in the Planning Unit.

Inventory data concerning non-game species and their habitat is seriously lacking on the Planning unit. Such information is essential to adequately coordinate resource management activities.

- e. Fish - The Methow River and its larger tributaries are typical of streams draining the east slope of the Cascades. These streams are low in nutrients, cold, subject to scouring and in unstable beds. They therefore are low in productivity for resident fish species but are valuable to salmon and steelhead.

The Chinook salmon and steelhead runs have been seriously reduced by the hydroelectric dams on the Columbia River and other factors, but they are still of sufficient size to receive full consideration in habitat management. The Chewack River supports the largest spring chinook run of any single stream above Rocky Reach Dam. ^{1/} An annual stocking program provides a rainbow trout fishery in these streams. Large populations of whitefish inhabit the Methow River from Mazama downstream. Dolly Varden are also found throughout the Methow River and its larger tributaries.

DESCRIPTION

Socioeconomic Factors

Most smaller streams and nearly all lakes support populations of rainbow, cutthroat, or eastern brook trout. The low lakes such as those around Winthrop or those in the Conconully/Sinlahekin area are highly productive. Their productivity, or ability to grow and produce fish, is perhaps five times greater than the productivity of high mountain lakes. The access, season, and fishing pressure of the low lakes corresponds with that productivity. While a few of the low lakes contain eastern brook trout, most are managed for rainbow trout and are stocked regularly.

The high lakes lie primarily in the Pasayten Wilderness and along the Sawtooth Range. These lakes generally support cutthroat or rainbow trout and are intermittently stocked with fingerlings. They receive considerable pressure and generally provide two or three years of excellent fishing. The Washington State Department of Game is currently conducting an intensive study of the high lakes in the Planning Unit.

D. Socioeconomic Factors

1. General - Only the social and economic impacts to Okanogan County resulting from the proposed action will be considered in depth. While lands of four counties lie in the Planning Unit, the main access and income producing activities are in or through Okanogan County. The only exception to this last statement is the North Cascades Highway.

The following, which is the introduction to Okanogan County's overall Economic Development Plan of 1971, gives a good brief look at the county's social and economic makeup.

"Okanogan County is a large area (5,295 square miles) sparsely populated county in the North Central region of the State of Washington. The mountainous topography in the county has restricted growth of communities to the Columbia, Okanogan and Methow river valleys. The climate is relatively dry and is characterized by cold winters and hot, dry summers. The population, 25,867 in 1970, is almost evenly distributed between the incorporated cities and towns and rural areas. The City of Omak is the largest in the county with a 1970 population estimated at 4,164. It is more than twice the size of any other incorporated community.

"Agriculture is the most important single element in the economy, with fruit, livestock, grains and hay the primary crops in descending order of importance. Lumbering is the next important factor in the economy, with tourism and recreation a rising third.

"The outlook for the foreseeable future is for the economic base to remain essentially the same with recreational use assuming increasing importance. Construction of large dams and associated irrigation and electric power facilities along the Columbia River has been an important, but varying factor in the economy of the county, and the population slump in recent years can be attributed primarily to the lack of major construction during this period.

DESCRIPTION

The planned expansion of the power-generation facilities at both Grand Coulee Dam and Chief Joseph Dam during the next ten years is expected to furnish a temporary impetus to economic growth."

2. Ski Area Development - Aspen Skiing Corporation is examining the possibility of a major year-round resort in the Early Winters area of the Methow Valley. Should Aspen develop a large scale resort, it would have a major influence on the social and economic climate of the county.

Sandy Butte, the proposed ski hill, is on National Forest land. The Forest Service can consider applications for a ski area after completing the present land use planning process. Then, any proposal would be subject to public review via an environmental statement as required by the National Environmental Policy Act of 1969.

3. Population Characteristics - The 1970 census showed 25,867 people lived in Okanogan County. Okanogan County reached a peak population of 29,131 in 1950. The population dipped to 25,520 in 1960 and remained essentially unchanged for the next decade. Between 1950 and 1970, while the State's population increased 43 percent, Okanogan County's dropped 11 percent.

Okanogan is Washington's largest county. While eleven counties have fewer people, only five have less people per square mile. Okanogan County's population density is five people per square mile as compared to the State's average of 51 people per square mile.

Indians make up the largest minority living in Okanogan County. Eight percent of the county's population are Indians. Most of the Indians are members of the Colville Confederated Tribes and live on the Colville Indian Reservation. Other minorities make up another 1.5 percent of the population.

Migrant workers swell the county's population by 5,000 or 6,000 people during the height of the fruit picking season. This great increase, even for a short period, gives an important economic boost to the county.

4. Economic Characteristics - Okanogan County's agriculture industry provides the greatest number of jobs in the county. Jobs in trade and Government are nearly equal in number and are the second most numerous. Manufacturing, mainly wood products, provides a distant fourth in numbers of jobs. Construction jobs vary depending on the major highway or dam projects being built.

The timber market of Okanogan County is almost a closed system. That is, most of the logs harvested in the county are used in county mills. Only a small part of the logs cut or milled in Okanogan County are "exported" or "imported." ^{2/} Mills in Ferry and Stevens counties do successfully compete for National Forest timber from the Tonasket

DESCRIPTION

District of the Okanogan National Forest. Several Western Washington firms bid on Okanogan National Forest timber. Their only success to date is to competitively bid up timber prices. In the past year only one large sale within the Planning Unit sold to an out-of-county buyer.

Of the six sawmills in operation in the county, two are owned by the same major forest products company that owns the plywood and veneer plant. About 90 percent of the total log consumption in the county in 1972 took place in the three mills owned by this corporation. Until 1973, these mills were locally owned. 2/

Nearly all the lumber produced within the county is exported to distant markets. The long distance to market becomes an economic disadvantage to all the county industries.

In recent years, construction work gave a major boost to the county's economy. Construction of the new Grand Coulee Powerhouse provided most of the construction jobs. The recently started Chief Joseph Powerhouse extension will help maintain the construction employment level.

Typically, jobs in agriculture and trade pay the lowest wages. Construction work pays far more than any other type. Following construction work, Government jobs and the wood products industry pay the most money.

The recreation industry generates many of the "trade" jobs. It is difficult to assess the value of recreationists to the local economy. A look at winter job reduction gives the best idea of recreation importance to the county.

Most people visit Okanogan County because of its natural attractions. "West siders" travel east to enjoy the clear skies and sunshine. Good hunting and fishing attract many people. The nation-wide acclaim given the North Cascades Highway brings many people to the area. Businesses serving tourists along the North Cascades Highway, i.e., motels, service stations, restaurants, etc., show great reductions in winter employment. These businesses, in Marblemount and Winthrop, reduce their help by 60 percent or more during the winter months when the highway is closed. These same types of businesses, in communities serving the resident population, such as Omak and Okanogan, make winter job reductions of less than 10 percent.

Major sources of employment in Okanogan County, agriculture, logging and recreation, are cyclic industries. Their busiest times occur during the warm season. Winter drops all their jobs to a low point. These cyclic industries contribute to Okanogan County's unemployment rate. The unemployment rate seldom drops below 10% of the available work force. The insured unemployment rate exceeded 24 percent in early 1975. Because of the unemployment rate, the number of people in Okanogan County receiving public assistance exceeds the State's average.

DESCRIPTION

Socioeconomic Factors

Present National Forest Management

The Planning Unit has a long history of mining activity. Mining currently contributes little to the area's economy. In the past, mining contributed heavily to the area's culture and economy. Mining appears destined to become more important in the future.

The first surge of mining activity peaked around the turn of the century. Miners searching for the "mother lode" staked claims throughout the high country. Several mines in Harts Pass-Barron Area and in the Gilbert Area at the head of the Twisp River produced profitable amounts of gold and silver. The Alder Copper and Gold Mine south of the Twisp River was recently activated. The Alder Mine is the only producing mine in the Planning Unit. The work there could best be described as heavy exploration rather than production.

Current prospecting and exploration is aimed at large low-grade ore deposits. Moen ^{3/} pointed out that the focal point has been "the disseminated copper deposits of the Mazama area.... During the past 5 years, this has been one of the most explored areas in the State. Quintana has large reserves of copper ore on Flagg Mountain and has staked over 200 claims in the Goat-Cub Creek area. About 2 miles east of Quintana's project, Exxon staked close to 100 claims in the Fawn Creek area, and core drilled throughout late summer and fall in the Insulator Creek Basin.... In the next few years this could become one of the most active areas of copper exploration in the State."

Quintana's Project Geologist told of the present status of Quintana's claims. "It appears from our first season's work that we have a deposit which, under present economic conditions, is not viable. However, history has shown how changing economic conditions can suddenly change the viability of a hereto uneconomic deposit. I believe that this deposit, although apparently uneconomic at the present is a real asset to the Methow Valley in the future." ^{4/}

The possibility of geothermal exploration and use exists in the Twisp River area. In 1974, Phillip's Petroleum applied for geothermal leases on 17,000 acres of National Forest land in the lower Twisp River area.

The possible impacts of any major mining or geothermal proposal will be subject to public review via a separate environmental statement as required by the National Environmental Policy Act of 1969.

E. Present National Forest Management

The Okanogan National Forest is managed under the various acts and laws pertaining to National Forests. Noteworthy among these are the Organic Administration Act of June 4, 1897, and the Multiple Use Sustained Yield Act of June 12, 1960.

DESCRIPTION

The Organic Act provides the basic jurisdiction and guiding criteria for management of the National Forests. The Multiple Use Act directs the Forest Service to develop and administer the renewable surface resources of the National Forests for multiple use and sustained yield.

A brief description of the present management of the various resources of the Planning Unit follows.

1. Air - The Okanogan National Forest follows the direction of the State of Washington's Department of Ecology regulations concerning air pollution. Open burning is prohibited during times when inversions or other atmospheric conditions prevent rapid dispersion of smoke into the air. Attempts have been made to reduce noise levels around sensitive recreation areas by limiting working hours on construction projects.
2. Fire Management - The Planning Unit contains some of the highest fire hazard and occurrence areas in the State of Washington. Hot dry summers coupled with fast-burning grasslands and forests become the proverbial powder keg waiting for something to touch it off. In 1970, a severe lightning storm did just that. By the time the fall rains quenched the last fires, 174 fires burned over 24,500 acres of the Planning Unit. In the four years since 1970, an average of 55 fires burned 71 acres on the Planning Unit each year. Disasterous fires, like those of 1970, occur when the number and size of fires overwhelm man's ability to cope with them.

Current Okanogan National Forest policy calls for control of all fires before they reach ten acres in size and by ten o'clock the morning following their discovery. Getting to fires fast helps keep them small. Much of the Okanogan's firefighting plans are based on getting to the fires quickly. Smokejumpers from the North Cascades Smokejumper Base in the Methow Valley or helicopter-carried crews can reach any fire on the Forest in 45 minutes or less. Two helicopters are assigned to the Forest during the fire season. One works out of the Smokejumper Base and the other out of Tonasket. Fire retardant bombers based at the Omak Airport add to the fire attack force. The bombers drop fire retardant to stifle a fire's spread until ground crews can get a chance to control it.

Several programs work toward reducing fire hazards. The Forest Service's current goal is to eliminate additional fire danger caused by man's activities on the Forest. Shaded fuelbreaks will split up areas of high fire danger. To make a shaded fuelbreak, heavy fuels, logs, branches, snags and dead trees, are removed from the area. The live trees are thinned so that fire cannot spread from tree crown to tree crown. The lower branches of the remaining trees are pruned to prevent the fire from running up the trees. The result is an open park-like appearance that will give easy access and from which a fire may more readily be stopped.

Years of successful fire control has resulted in a build up of unnaturally high amounts of fuels throughout the Forest. The great amounts of fuels present an everincreasing threat and potential for serious resource damage from major fires.

DESCRIPTION

Present National Forest Management

The Forest Service is now considering several programs which may change the current policy of controlling all fires. Fires in certain areas may be allowed to burn themselves out. Controlled burning, fires purposely set and closely watched during periods of low fire danger, looks like a way of preventing bad fires during times of high fire danger. A lot of study, plus analysis of the environmental impacts, will be needed before going ahead on either of these last programs.

3. Fish and Wildlife - To date the Forest Service has not mounted an extensive effort in the field of Fish and Wildlife Management in the Planning Unit. We lack knowledge of the habitat requirements of many of the non-game birds and animals.

Past logging activities have generally benefited big game animals. Big game has held the greatest interest for users of the Planning Unit. The Methow area has long been noted for its mule deer herd. Deer numbers are still well below those prior to the severe winter of 1968-69.

The Forest Service's major effort has been to keep sedimentation and erosion from man-caused activities to a minimum. The cold water streams flowing from the Forest warrant protection of their fisheries resource.

4. Forage - Livestock grazing on the Okanogan National Forest is a strong part of the county's culture. Grazing National Forest lands gives an economic boost to the county's livestock industry.

The Forest Service permits grazing on areas suitable for that use. These permits cover specific areas called allotments. Some allotments are best suited for sheep and goats; others for cattle and horses. A total of 52 allotments now exist on the Planning Unit. Forty of the allotments are for cattle and horses, the other 12 for sheep and goats. In 1974, two of the cattle allotments were not used while five of the sheep allotments were not grazed. All the ungrazed sheep allotments are in the western part of the Pasayten Wilderness. Those allotments are less desirable because of their remoteness.

Each allotment is divided into several areas of "pastures." Fences and/or natural barriers separate the pastures within each allotment. These pastures allow closer management within the allotment.

All allotments are grazed on a rotation basis. The pastures within each allotment are grazed in a way that allows each a full growing season's rest from livestock grazing at least every third year. This rest allows the forage plants to maintain their vigor.

Typically, cattle are turned onto the allotment. Water, salt, fences, and natural barriers are used to direct the cattle's movements. Some "range-riding" is done if needed to move the cattle from one spot to another. Sheep run in large bands often numbering 2,000 or more. A herder stays with the sheep at all times to control their movements.

DESCRIPTION

The number of animals grazed depends upon the range inventory for each allotment. After finding out the total forage or plant production, an amount needed to maintain the plant's vigor plus an allowance for wildlife use is estimated. The remaining forage is considered available for domestic livestock. Occasionally, a reinventory of the range is needed to see if the forage is being over or under-used.

Future management will take a different direction. Rather than setting a limit on the number of animals allowed on the allotment, the grazing will be limited by the condition of the range following use. The permittee using the range may run more animals as management improves and he maintains the range in good condition. If he practices good range management, he can reap the benefits of his efforts.

5. Landownership - The ownership pattern within the Planning Unit's boundaries is relatively simple. Lands other than National Forest comprise less than two percent of the area.

Most of the private lands are old homestead entries along the rivers and streams. Patented mining claims make up about 1,000 acres of the private lands within the Planning Unit. Most of the patented claims are in the Barron Area.

Some opportunity exists to consolidate National Forest lands. The Forest Service has authority to acquire lands several ways. The most common way is through exchange, which means trading National Forest lands for private lands. Public Law No. 227 of August 2, 1935, allows the Forest Service to exchange for lands up to four miles outside the Chelan National Forest (now the Okanogan National Forest) boundary.

The Forest Service objectives of land exchanges are threefold. These are:

- a. To help conserve forest and watershed lands and resources under the principle of multiple use.
- b. To consolidate National Forest lands to ensure the most efficient and economical management.
- c. To help solve problems caused by intermingled lands of different ownerships.

The Forest Service's policy is to acquire lands desirable for National Forest ownership as they become available. The Forest Service tries to balance out the size of land exchanges. That is, the tracts of National Forest lands traded should be the same size as the private lands received.

Many of the homesteads have been subdivided. The ownerships are now too small and numerous to consider consolidation into the National Forest. Mining claims often have complicated ownership and questionable boundaries making their acquisition difficult. Even if the Government acquired the claims, many could be reclaimed for their mineral value.

DESCRIPTION

The factors explained above reduce the chance to trade lands with the owners of small tracts. There remains some possibility to trade lands with the owners of large tracts including the State of Washington's Department of Natural Resources and Department of Game, and with Crown Zellerbach.

6. Minerals - The general mining law of 1872 allows prospecting, location, exploration, and extraction of valuable minerals from public domain lands. Typically, National Forest lands fall into a classification of public domain lands. All the lands in Planning Unit 1 are open to mining except a few areas specifically withdrawn from mineral entry. The areas withdrawn from mineral entry include a strip along the North Cascades Highway and areas around campgrounds and ranger stations.

The Forest Service manages the renewable surface resources. The Forest Service's responsibility is to see that the mining is done in a business-like manner taking reasonable precautions to protect the environment. Recent mining regulations help the Forest Service in their job of protecting the environment. Along with other things, the new regulations require miners to file yearly operating plans with the District Ranger. This knowledge of the miner's plans will allow the Ranger to see that environmental guidelines are followed.

The Wilderness Act of 1964 allows prospecting, location, and exploration of minerals in Wilderness through December 31, 1983. Starting in 1984, no new claims may be staked in Wilderness areas. Those Wilderness claims with proven value of minerals may continue to be operated under the mining laws after the 1983 cutoff date.

7. Recreation - The Forest Service tries to make available a forest type recreation experience to all visitors. Nearly all recreation uses on the Planning Unit show increases above what could be expected from the general population increase. Opening the North Cascades Highway caused a big jump in recreation use. As could be expected, the greatest increases occurred in campgrounds on or near the highway.

The Forest Service records recreation use as either dispersed or developed use. Developed recreation includes any use occurring at sites developed specifically for recreation use such as campgrounds, boating sites, etc. Any use taking place away from developed sites falls into the dispersed category. Dispersed recreation use consistently exceeds developed use in the Planning Unit.

The modern self-contained camper and trailer accounts for considerable dispersed use through the Planning Unit. Wide spots in the road or abandoned logging spurs make handy camping sites for people with these units. As could be expected, "driving for pleasure" is the highest single recreation use reported. Pleasure driving accounts for fully one-fifth of all recreation use on the Planning Unit.

A chart in Appendix A shows how campgrounds are rated by their level of development. Level one campgrounds contain few improvements. Level five campgrounds are the most highly developed. The Forest Service campgrounds in the Planning Unit range from Level 1 to Level 3. No highly developed campgrounds exist or are pro-

DESCRIPTION

posed for the Planning Unit. The Forest Service finds it can provide camp sites for more people by building campgrounds in the lower development scales. The demand for more developments at campgrounds can be fulfilled by commercial campgrounds on private lands.

The Planning Unit has 58 developed recreation sites. These sites will accommodate about 2,100 people at one time. Many of the campgrounds were originally built in the CCC days. Recently, several sites were developed along the North Cascades Highway. Klipchuck Campground, with 50 camp sites, was completed in 1972. Washington Pass Overlook and Picnic Area will be completed in 1975. A trail-head and picnic area is planned at Rainy Pass.

Campground use is heavy. Campgrounds along the North Cascade Highway usually fill every night during the summer. Few campsites remain vacant anywhere in the Planning Unit on summer weekends.

All indications point toward continued increased recreation use within the Planning Unit. Most of the increase will occur in the dispersed areas. The Forest Service inventoried nearly 300 acres of high quality areas for future camp or picnic grounds. These areas will be available for development should future demands warrant it.

8. Soils - Soil is a basic resource. Most life forms are "rooted" one way or another to the soil. The Forest Service's goal is to keep man's impact on the soils to a minimum. To achieve this goal, they emphasize prevention of unnecessary soil disturbance. A two level prevention approach works toward keeping soil disturbance to a minimum.

First, a Soil Resource Inventory is in the final stages of completion. It will provide a forest-wide picture of the soil resource. Its primary purpose is for broad area land use planning. The inventory will give the Rangers data on soil stability, resistance to erosion, fertility, ability to hold water plus other basic information. Technical characteristics of texture, structure, depth, slope and aspect add to the inventory's usefulness. The inventory will give the Ranger a good idea what areas are suitable for what uses. The second part calls for the use of detailed, on-site soil surveys, for specific projects like roads, timber sales, or other proposed developments.

The soils data collected for the Soil Resource Inventory aided greatly in the land use planning process.

Soils disturbed by logging or construction projects are promptly treated to prevent unnecessary erosion.

9. Timber - National Forest timber is managed as a renewable resource. Tracts of timber are marked out and sold to the highest bidder. Trees to cut, harvest methods, fire protection measures, utilization standards and measures to protect other resources in the process are prescribed by the Forest Service.

Many factors are combined to determine the rate at which the timber is sold. Some of these factors include how fast the trees grow,

DESCRIPTION

Present National Forest Management

the amount of large old growth timber present, protective measures for recreation use and streamside areas, plus others are all considered to determine the rate of selling timber.

The current timber management plan, developed in 1969, calls for logging all areas available for timber harvest on the Planning Unit by the year 2089. By that time the timber management areas on the Planning Unit would then be covered with trees from seedlings to 120 years old. Areas of heavy public use would be logged at a much slower rate to preserve some of the old large scenic trees.

Much of the commercial forest land in the Planning Unit, like most West Coast National Forest lands, is covered with old growth timber. Old growth trees, those over 200 years old, are beyond the age of their most rapid growth. Trees lose their vitality with age and become easier victims to insect and disease attacks. One of the major timber management goals is to harvest the old trees allowing increased growth on younger trees, thereby accelerating the forest's overall timber production.

While old trees grow slower than younger trees, they have "stored" more timber per acre than in areas with younger trees. Because of this high "stored" volume, the cutting rate can be higher now than it will be when the area is completely covered with younger trees. At that time the rate of cutting will equal the growth rate.

The present amount of timber sold annually was based on lands growing commercial timber outside the Pasayten Wilderness. Additional lands excluded from figuring the allowable cut include The Harts Pass, Liberty Bell, Golden Horn and the Sawtooth areas.

The current programmed yield for the Planning Unit is 65 million board feet (MMBF) a year. That includes about 12 MMBF per year above the growth rate to allow for removal of the old growth timber.

The type of timber harvest prescribed for a timber stand depends upon the species, age and condition of the trees. The type of harvest falls into one of three broad classes.

Dead, diseased and windthrown trees are logged while they still contain good wood. This is salvage harvesting. Surplus trees are sold from immature timber stands of trees big enough to sell. This commercial thinning is called an intermediate harvest. Finally, mature trees are harvested with one objective being starting a new crop of trees. This is known as a regeneration harvest.

Over eighty percent of the Planning Unit timber harvest comes from regeneration harvesting. Most of regeneration harvest on the Okanogan National Forest is shelterwood or seed tree cutting. These systems leave some of the mature trees as a seed source and climatic buffer. They are removed when the new crop is well established. Clear cutting is used when other regeneration methods will not adequately provide for seedling establishment or control of insects or disease.

DESCRIPTION

10. Visual Resource - The Okanogan National Forest follows the Visual Management System developed by the Forest Service Landscape Architects. Briefly, this system seeks to identify the visual characteristics of the landscape and analyze in advance, the visual effects of man's use of the area. The Visual Management System is a 2 part inventory: (1) The natural scenic quality of the landscape or "Variety Class", and (2) The importance of natural scenic quality to man or "Sensitivity Levels". From these two factors a "visual quality objective" is established for any particular area of National Forest land.

Five quality standards exist, ranging from preservation where no man-made changes of the natural scenery are allowed to areas of maximum modification where man-caused activities can dominate the landscape.

Nearly two-thirds of the Planning Unit falls into the highest variety class of "Unique". Over half of the Planning Unit falls into the highest sensitivity level, that of National or major local importance. As a result, over half of the Planning Unit is managed to maintain the natural characteristics of the landscape.

11. Water - Most of Okanogan County's agricultural products are grown on lands receiving 20 inches or less precipitation annually. Dry summers along with porous soils make nearly all of Okanogan County's agricultural outputs dependent upon irrigation. Much of the water diverted for agricultural or industrial uses in the western part of Okanogan County flows from the Planning Unit. The State of Washington's Water Supply Bulletin No. 38, "Water in the Methow River Basin, Washington", gives a good idea of water uses in Okanogan County. Most of the Methow River's flow originates on the Planning Unit. Bulletin 38 gives a good look at the uses of those waters.

Surface water diverted from rivers and streams provide 95 percent of the industrial and irrigational water used in the Methow Valley. Ground water supplies are tapped only if the surface supply becomes unreliable. Total water flows from the Methow drainage are more than ample. About 10% of the total flow is diverted for man's uses. Forty-five percent of the diverted water is lost through canal leakage, evaporation and waste. The actual amount of water used is about one-twentieth of the Methow's total annual flow.

While the total amount of water in the Methow system greatly exceeds uses, low stream flow sometimes cause problems. Long dry summers sometimes cause water shortages during late summer and early fall.

Current management efforts are directed toward maintaining water quality. Scattered measurements show the water flowing from the Planning Unit meets or exceeds State of Washington water quality standards. The State calls for all waters flowing from the Planning Unit to meet AA Extraordinary standards. Certain laws give the State power to set standards for water quality and use. The Organic Act of

DESCRIPTION

Present National Forest Management

1897 allows use of water from National Forests for domestic, mining, milling or irrigation use under the laws of the State. The Federal Water Pollution Control Act of 1956, as amended, gave authority for State and Federal Government to establish water quality standards. The Federal Government cooperates with the State and municipalities in preventing or controlling pollution of water over which they have jurisdiction.

The Forest Service follows agency guidelines in managing streamside areas. Streamside vegetation is left uncut in critical areas to shade the water to prevent temperature rise. Construction equipment and logging operations are directed away from stream banks to eliminate unnecessary disturbance and to keep debris from entering the stream.

12. **Wilderness -** The Pasayten Wilderness lies entirely within the Planning Unit. The Pasayten Wilderness is the largest Wilderness area in the State of Washington. It stretches 50 miles west from its eastern border to the Ross Lake Recreation Area. The distance from the southern entry points to the Canadian Border often exceeds 20 miles. The management of an area of 500,000 acres is bound to present complex problems.

The Pacific Crest Trail which crosses the Pasayten Wilderness joins with trails in Canada. The Canadians have worked out a procedure to allow legal entry into Canada via the trail. It is still illegal to enter the United States via the Pacific Crest Trail.

The Pasayten remains a lightly used Wilderness. Still, favorite areas suffer from man's overuse. Signs of man's use conflict with the management goals of the Pasayten Wilderness.

The intent of the National Wilderness Preservation System is to secure and maintain for the American people of this and future generations a continuing resource of Wilderness. To do this, the Pasayten is managed by the following objectives: (a) Manage the Wilderness by sub-units which tend to be distinguished by access, use patterns and terrain, (b) Determine the existing ecological and sociological capacity of Wilderness and keep use within that capacity, (c) Continue on a planned basis the removal of non-conforming structures and litter plus an active "pack-it-out" policy to preserve the Wilderness character of the area, (d) Identify areas needing further study and planning, including history, inventories of flora and fauna and geological data plus ecological succession. 5/

The Wilderness Act of 1964 recognizes many possible uses in Wilderness. Included in these uses are grazing and mining. There are presently three active cattle grazing allotments and two active sheep grazing allotments within the Pasayten Wilderness. To keep the impact from grazing to a minimum, the amount of stock allowed on these Wilderness areas is one-half that on similar areas outside the Wilderness. In 1974, 505 head of cattle grazed in the Wilderness. The

Harts Pass sheep allotment with 1,200 ewes spent one-half the time in the Wilderness. Another temporary sheep allotment for 1,500 ewes in the Horseshoe Basin area was not used in 1974 due to the late melting snows.

Locating mining claims can continue in Wilderness areas until 1984 as was explained in the Minerals Section of this statement. The last active mining operation in the Pasayten Wilderness, the Tungsten Mine, ceased operation in the Forties. Prospecting continues in parts of the Wilderness.

The Forest Service plans a continuing research effort to gain more information about the Wilderness and its use. The knowledge gained will help the Forest Service to better manage and protect the Wilderness values. Top priority goes to determining the current use pattern along with finding ways to disperse the use. Finding out how resistant the soil and vegetation is to wear will help determine carrying capacity of Wilderness areas. Other research is planned to find out the habitat needs of the native wildlife, the effect of fire and grazing and many more areas. 5/

ENVIRONMENTAL IMPACTS

II. ENVIRONMENTAL IMPACTS

A. Air

Many factors now affect the quality of air within the Planning Unit. Man's current use within the Unit contributes its share of pollutants to the air. Westside smoke and smog commonly flow over the Cascades on the calm days of early fall. Trees "breathing" create haze on very hot still days.

Man's activities will be extended to some areas now relatively free from disturbances. The temporary impacts of dust, noise and smoke from road building, logging and other of man's activities will intrude into what are now roadless areas.

The noise, dust, and exhaust emissions from industrial operations are temporary impacts. They typically occur during daylight hours during the construction or logging season. Smoke from fires used to reduce man-created fire hazards will be more wide-spread throughout the Planning Unit. Burning goes on day and night when the weather permits.

Helicopters used for logging will penetrate some of the more remote areas. The nature of helicopter operations will make them noticeable for long distances.

Recreation use will result in noise, dust, exhaust emissions, and smoke throughout the Planning Unit. These are seasonal in nature; occurring mainly from the start of fishing season through the end of hunting season.

Mitigation

More of the planning area will be available for timber harvest. The impacts from road building and logging will be dispersed over a larger area. Expected improvements in logging and milling techniques will result in more wood taken to the mills and less "logging slash" left behind. Less slash means fewer fires needed to dispose of it. Any burning is done during atmospheric conditions which allow for quick dispersal of the smoke.

The area in and around the Planning Unit is very sparsely populated. Any air pollution from within the Unit will impact few people.

Vehicles using National Forest roads will cause air pollution from exhaust emissions, dust, etc. The amount of pollutants will be minor because National Forest roads receive relatively light use. The Twisp River Road received the heaviest use of any National Forest road in the Planning Unit in 1974. During the 195-day period, from April 24 to November 5, a total of 26,117 vehicles traveled up or down the road.

IMPACTS

Civil Rights

Energy

That sounds like a large number until we consider that the same number of vehicles have crossed a point on the Seattle Freeway in two hours.

The Forest Service will consider limiting logging and road building in important recreation areas to periods of low public use. In some areas, such work could be scheduled before or after the "tourist season."

B. Civil Rights

The Socioeconomic section discusses the possible loss of jobs due to implementing of this plan. Minority groups often feel the first and greatest impact during a time of job reductions. Any layoffs relating directly or indirectly from the reduced timber cut may affect a greater percentage of minority workers than the general population.

Mitigation

All National Forest contracts with a value exceeding \$10,000 and all special-use permits require that the holder abide by the nondiscrimination laws. Noncompliance with the civil rights laws can result in canceling of the permit or contract. The holder can also be disqualified from bidding on future permits or contracts.

Washington State laws, modeled from Federal laws, also protect people from discrimination in employment, housing and other fields.

C. Energy

The proposed action will result in increased energy consumption. Expanding and maintaining a longer road system within the Planning Unit will require greater use of petroleum fuels. Use of dust oil or paving will use additional petroleum. Extended road systems throughout the Planning Unit will encourage more recreation driving and higher energy consumption.

Helicopters will be the main method of logging timber from unroadeed recreation use areas. Helicopter logging consumes up to ten times the amount of fuel as conventional logging methods. The annual additional fuel consumption from this one item is expected to run about 30,000 gallons per year. That's figured by estimating the use of fuel in helicopter logging at 20 gallons per thousand board feet above conventional logging methods. The Forest Service estimates an additional 1,500 MBF of timber will be harvested by helicopter each year due to the unroadeed zoning ($1,500 \text{ MBF} \times 20 \text{ gallons per MBF} = 30,000 \text{ gallons}$).

Mitigation

Much of the extra energy used implementing the proposed action could be well invested. Expansion of the area available for timber harvest will allow a higher timber yield from the Planning Unit. (See the chart showing outputs from all the Alternatives.) On an energy used basis, the manufacturer of lumber compares favorably with substitute building materials. It takes about half the energy to produce a ton of concrete than it does a ton of lumber. Steel takes 17 times the energy while aluminum consumes 55 times more energy to produce than a like weight of lumber. One must realize these materials cannot be substituted in all cases and seldom on a weight for weight basis.

IMPACTS

Low standard roads needed primarily for logging access can be closed between uses. Lower maintenance needs and reduced recreational driving will result in reduced energy use.

D. Historical and Archeological

Road building and other developments could alter or destroy unknown historical or archeological sites. The public often unknowingly lowers the value of some sites by "collecting" antiques and artifacts.

Mitigation

Prior to initiating any ground disturbing projects resulting from these plans, a reconnaissance or more intensive survey, if necessary, will be conducted to identify any historical or archeological site in the area of the project.

The Forest Service can help inform the public about the value of remnants of early Indians, trappers, miners and other visitors of the Planning Unit. The Antiquities Act of 1906 requires preservation of artifacts and historical sites on Federal lands.

The most recent listing of the National Register of Historical Places has been consulted in compliance with Section 106 of the National Preservation Act of 1966. The only site listed that is within this Planning Unit is the "Parson Smith Tree" located in Section 1, T.40N., R.18E., in the Pasayten Wilderness. The Proposed Action will serve to maintain the opportunity for discovery of additional sites and will not adversely affect those sites now on the National Register of Historic Places of any future recommended additions.

In compliance with Section 2 of Executive Order 11593, the Proposed Action will not result in the transfer, sale, demolition, or substantial alteration of lands seemingly with characteristics for future nomination to the National Register of Historic Places.

In compliance with Section 101(b)(4) of the National Environmental Policy Act and Section 1(3) of Executive Order No. 11593, the Proposed Action will not affect, either favorably or adversely, the preservation and enhancement of non-Federally owned district, sites, buildings, structures, and objects of historical, archeological, architectural, or cultural significance.

The State Historical Preservation Officer has also been consulted concerning historic properties in the Planning Unit, and the proposed action.

E. Minerals

The proposal recommends two areas to study for possible inclusion in the National Wilderness Preservation System. If they gain Wilderness status, the minerals within those lands will be withdrawn from all forms of appropriations under the mining laws and from disposition under the mineral leasing laws starting in 1984.

Historical and Archeological

Minerals

IMPACTS

Minerals

Carrying out the proposed action will result in building roads in areas not now roaded. These additional roads may allow easier access for prospecting and extracting minerals.

The closure of the Harts Pass-Chancellor Road would place the burden of road maintenance and responsibility entirely on any miners wishing to continue use of the road. Further prospecting in the Barron area would become more difficult and expensive.

Miners can expect greater restrictions applying to their access and operations in Recreation Use Areas, Scenic Areas, and Wilderness Areas. The restrictions will be aimed at protecting the esthetic and recreation attractions of these areas.

Mitigation

The following passage from the Wilderness Act of 1964 helps offset the Act's withdrawal of minerals in wildernesses:

"Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present, and the results of such surveys shall be made available to the public and submitted to the President and Congress."

F. Socioeconomic

The proposed land use plan foregoes the possibility of tying together the Toats Coulee and Chewack River Roads. Part of the unbuilt road route lies in a New Study Area, the rest in an unroaded, Recreation Use Area. The present use along these two roads will not change significantly.

The allowable cut for the Planning Unit is expected to drop from 65 to 60 million board feet (MMBF) annually. To get an idea how Okanogan County's economy will be affected one must look at the jobs involved. In 1972, it took seven man years to log and manufacture a million board feet of timber in Okanogan County. In the future, increased efficiency, especially in the saw milling operation, will reduce the number of man years work per million board feet. By the year 2000 only five man years will be necessary to log and mill a million board feet from Okanogan County. ^{2/} A drop of five MMBF annually could result in 35 fewer basic jobs in the logging and milling industry. Logging and milling work are basic jobs. They produce income which generates other jobs known as service jobs. A loss of 35 basic jobs in Okanogan County could result in 38 less service jobs. (See the Appendix C for derivation of these figures.)

Socioeconomic

IMPACTS

A loss of 73 jobs, mainly in Okanogan County, could result from five million board feet less timber sold annually. Projecting forward to the year 2000, five MMBF less timber going to market each year would then mean 52 fewer jobs in Okanogan County.

The question will arise: "What part of the county will be most affected?" Seemingly it would be the Methow Valley area because most of the timber within the Planning Unit is tributary to the mill at Twisp. That won't be the case, for the rate of logging in the Planning Area will remain unchanged.

The amount of timber sold is averaged out on a forest-wide basis over a ten-year period. The current ten-year period runs from 1969 to 1979. A total of 881 MMBF of timber is scheduled to be sold on the Okanogan National Forest during that period. 594 MMBF, or slightly less than 60 MMBF annually will come from the Twisp-Winthrop-Conconully Planning Unit. The Tonasket District will supply the rest. 7/

The 5 MMBF drop of the allowable cut (6 percent of the Okanogan National Forest's cut) may cause timber prices to raise. Right now competition for Okanogan Timber Sales can be considered low. Few sales are bid up more than 20 percent above their advertised price. Increased competition for smaller amounts of timber being sold may cause unexpected rises in the amount bid.

Two more jobs must be completed before the full effect of the Land Use Plan can be accurately estimated. The first will be to complete land use planning on the Tonasket District. Next would be a forest-wide timber inventory and management plan. The Timber Management Plan would establish the amount of timber that would be sold in the following decade. Separate Environmental Statements will explain the impacts expected from the last two steps.

Okanogan County gets 25% of the National Forest income in lieu of taxes. Most of the income comes from timber sales, with grazing permits and other permits contributing lesser amounts. The County's income from the National Forest could drop should timber prices remain the same. As discussed before, a smaller timber supply could raise timber prices through increased competition, eliminating any loss of revenue to the county from this source.

The Proposed Action will continue to maintain the amount of forage above what is currently being used. Right now several grazing allotments on the Planning Unit aren't being used. Some ranches, mainly in the Methow Valley, that held National Forest grazing permits have recently been sold to non-ranching owners. With the general down trend in Okanogan County's cattle industry it appears the extra forage will have little monetary value.

Increased water yields from the Planning Unit (see Water on page II-8) will be of little economic benefits at this time. Okanogan Irrigation District, with Conconully Reservoir and Lake for storage, has benefited from the additional runoff. Other districts that lack ways to store the additional runoff will not benefit.

IMPACTS

Socioeconomic

Slight increased hydroelectric power generation will result from the Proposed Action. Three Columbia River dams below the Methow can now use the entire river's flow through their generators. The increased stream flow from the Planning Unit will allow these three dams to produce additional power.

This plan proposes roading some of the now roadless areas. The roads will give access for full use of adjacent resources. They will also expose humans and wildlife to the hazards inherent with the use of motor vehicles on these roads.

It is appropriate to restate that this statement does not consider the possible impacts from a resort complex at Early Winters. Nor does the Proposed Action foreclose the resort possibility. A year-round resort as pictured by Aspen Skiing Corporation would produce economic and social impacts far beyond those of the Proposed Action.

Mitigation

The present allowable harvest will be continued until the new timber management plan, due in 1979, is completed.

Crown Zellerbach, the main customer of timber from the Planning Unit, is considering major modifications of their Twisp mill. Through a considerable investment they could convert their mill to use more wood from each tree. They would also be able to use smaller logs than they can now economically use. This points to a possible future use for lodgepole pine from the Planning Unit. Lodgepole Pine covers large areas of the Planning Unit. It is not now figured as part of the allowable cut on the Okanogan National Forest. If a reliable market develops for lodgepole pine and it can be harvested by environmentally sound methods, the amount of timber coming from the Planning Unit may not drop as much as now seems necessary.

The Forest Service hopes to practice more intensive forest management in the Timber Management areas. Intensive forestry requires a great deal of labor for certain jobs. Tree planting and thinning are almost exclusive hand jobs on the Okanogan. Thinning alone should double to about 5,000 acres annually, creating an additional 10 man years work for thinning contractors. Planting and fire hazard reduction work will create jobs for other contractors.

G. Soil

Soil

Accelerated soil movement and erosion will occur as man extends his uses and activities into new areas. Logging and later fire management activities will affect the soil's productivity. Soil temperature and water content will change. Fire, whether wildfire or controlled burning, will change organic material, above or in the soil surface layer, to ash. The nutrients in ash are readily available for plant use, resulting in a short term increase in soil fertility. Logging, followed by burning of the logging slash, will result in quicker cycling of plant nutrients. Rain and runoff will carry some of these nutrients into the water courses.

Removal of the A Horizon (the surface soil layer varying from 1 to 6 inches deep) will lower soil productivity. Loss of the A Horizon can

IMPACTS

be expected on logging skid trails, temporary roads and landings. Use in recreation sites will result in soil compaction and reduced vegetation growth. Roads and other of man's developments will remove additional areas from production.

Mitigation

The Soil Resource Inventory for the Okanogan National Forest will be completed for the 1976 field season. The Inventory will help the Forest Service to match soils with uses. Timber sales and logging systems will be matched to the soils and landform characteristics to maintain soil productivity. Good road system planning will reduce the number and miles of road built.

Roads cause the principal source of soil sediment. ^{8/} Sediment from roads pose a great possibility of damaging our rivers, lakes and streams. Large areas zoned for roadless use and proper use of the soil resource inventory will reduce the temptation to build roads through areas of high hazard soils.

Proper design of roads, logging systems, and recreation developments can keep soil disturbance to a minimum. Prompt seeding of areas of disturbed soil will reduce erosion. Permanent and seasonal road closures will prevent road damage and undue stream sedimentation.

H. Vegetation

In timber management areas, the large old growth trees will be harvested before they fall prey to insects, disease or old age. The areas will support younger, smaller and faster growing trees for the next crop. A number of the larger trees will be maintained in the Recreation Use areas primarily for their scenic value.

The extent and numbers of ponderosa pine will likely be reduced. Selective logging, coupled with fire protection, allows more shade tolerant and less fire resistant species to occupy areas now covered with ponderosa pine.

Increased ground cover will occur in thinned or logged areas as a result of more moisture and light reaching the ground. Increased ground cover is expected to result in more forage being available for both wildlife and domestic stock. As the new crop of trees grow up, their crowns will close together reducing the ground cover by shutting off the light and moisture.

Mitigation

The range of ponderosa pine can be maintained through proper fire management. Frequent fires, from 12 to 25 years apart, must burn through ponderosa pine areas in order for the species to maintain itself. ^{8/} In the past, fires sweeping through the pines killed back the competing brush and trees, thinned out the pine thickets and maintained the open park-like pine stands.

Soil

Vegetation

IMPACTS

Visual

I. Visual

The affect of man's activities will be seen in areas now relatively free from man's influence. New roads will result in long-term changes to the landscape. Logging will bring extensive landscape changes. Tree cultural methods and fire management activities will make temporary changes to the landscape's texture and/or color. Large roadless scenic areas will maintain the present landscape of much of the North Cascades within the Planning Unit.

Mitigation

The visual changes caused by man's activities will be less noticeable as the Forest Service improves and expands its visual management system.

Water

J. Water

Changes in water quality can be expected in each new area disturbed by man's activities. Extending roads and logging into new areas will result in increased water temperatures plus greater amounts of organic material and soil sediments reaching the water courses. Organic material and sediment will physically and chemically change water quality usually to the detriment of the aquatic habitat. Stream appearance will be adversely affected. Slight increases in water runoff will also result. Increased stream bank and channel scour from the greater runoff will occur.

Maximum water quality loss will occur about the time of completing the road system within the Planning Unit. Water quality should then improve as road slopes heal. A point of equilibrium will later be reached. Water quality will remain at a lower level than the preroaded days as long as the roads are in use.

Herbicide and pesticide applications will result in temporary changes to the aquatic habitat and to water quality. Any proposed chemical uses will be examined and an environmental analysis of their impact made. The impacts of possible chemical use will be discussed in other environmental statements.

Recreation use in remote areas and domestic livestock will pose the chance of reducing the potability of water sources.

Mitigation

Careful design of forest roads and choice of logging systems will reduce soil loss and stream sedimentation. Following the Forest Service's guidelines on streamside management will reduce stream bank disturbance and help keep debris and sediment out of the water. Prompt seeding, mulching, or other erosion control practices will help control erosion from areas of disturbed soils and reduce the amount of sediment reaching water courses. Closing and revegetating little used roads will reduce sedimentation from those sources.

The Okanogan National Forest has started monitoring or checking the water quantity and quality of selected streams. Three possible high impact areas will be monitored before, during and after the possible activity. The three areas are:

IMPACTS

1. Sandy Butte Area - possible winter sports site.
2. Goat Creek Area - probable mining site.
3. Beaver Creek Area - now a Roadless Area proposed for active timber harvest.

The before, during and after monitoring will show the impact of the activity and measure the effectiveness of the rehabilitation effort. The goal of the water monitoring will be to find the best ways to maintain water quality.

K. Wilderness

Two areas totaling 21,100 acres will be studied for possible inclusion in the Wilderness.

The large scenic unroaded areas may relieve some of the user pressure on the Wilderness.

Roads will be built into many roadless areas eliminating the possibility of their future consideration for Wilderness designation. More sights and sounds of man will become noticeable from near some part of the Wilderness borders. Continued use of the Wilderness by domestic and recreational livestock will continue to conflict with those opposing these uses. Livestock pose the possibility of introducing non-native plants into the Wilderness.

Mitigation

Following the Forest Service's visual management system will help blend man's works with those of nature. Man's activities would then be less noticeable from within the Wilderness.

L. Wildlife

The Proposed Action will affect fish and wildlife in many ways. The greatest impact will occur in the Timber Management Areas due to intensive timber management. Impacts of varying degrees are expected in the Recreation Areas, the Wildlife Areas and the Watershed Areas. Few changes are expected in the Scenic Areas, New Study Areas or Wilderness.

Extending the road system will cause the greatest adverse impact. Building roads will destroy habitat. Roads will give easier access to many parts of the Planning Unit increasing the chances of wildlife harassment.

Roads also cause the greatest amount of unnatural sediment getting into streams. There the sediment clogs up gravel beds reducing their ability to produce food and silts up spawning beds lowering their value. Logging and any other soil disturbing project will also result in erosion and soil reaching streams. Still roads are the number one culprit.

Wilderness

Wildlife

IMPACTS

Intensive timber management has already and will continue to remove snags from around logging areas. Past practice was to cut all snags in logging area for fire protection. Not enough snags will be left for cavity nesting species or as perches for hawks and owls. A reduction of woodpeckers, cavity nesting species, along with hawks and owls is expected. This effect will occur mainly in Timber Management Areas.

We know little about the smaller ground dwelling mammals. Generally, a decrease in grasses, the natural condition, and an increase in mixed invader species results in an increase in rodents. The more an area is disturbed the greater are these effects.

The Proposed Action will affect grouse habitat and population. Blue grouse will be the most affected, Franklin grouse to a lesser degree, and Ruffed grouse very little. Blue grouse nest in the lower open pine-bunchgrass areas. Grazing by cattle before or during the nesting season can lower the value of these nesting areas. Partial cutting in the lower elevation timber stands can increase the ground cover and improve nesting sites.

Winter habitat for Blue grouse is in ridges in the wolfiest trees, usually mistletoe infected. These trees are first to go if the manager wants to reduce the chance of infecting stands on lee side of ridge. Also, they are taken out during fuel break construction. The effect of these tree removals may be nearly as serious as grazing in nesting areas. We can't presently measure effect, but need to seriously evaluate.

The greatest impact to deer comes from the loss of winter range. This has been the greatest cause of the reduction of western deer herds. Losses come from direct disturbance to the winter range either natural or man caused. Examples include road building, changing vegetation types, grazing, closing forest canopy (reduces ground cover and food), and the temporary effects of fire. Indirect disturbance also reduces or eliminates winter range. Examples include barriers to movement such as deer fences, or harassment from people, dogs, or heavily used highways.

Generally, intensive timber management will provide more summer food for deer. A managed timber stand will be more open than a natural stand. More light and water reaching the forest floor will increase ground cover. The Planning Unit now has ample summer range. The additional summer food supply resulting from timber management activities will be of little value.

Brushy stream side areas are important habitat for whitetail deer, ruffed grouse, and in the Methow Valley, an unusual resident, the grey squirrel. These brushy areas are often important deer fawning areas. If converted to coniferous forest these areas also grow good timber. Some of these areas will be converted to timber in the Timber Management Areas with the resulting loss of wildlife habitat.

A net result of intensive timber management will be an area of less variety. An area of less variety will support fewer different species of animals.

IMPACTS

Wildlife

Animals spending their lives in the Wilderness are little affected by man's actions. Man's fire control efforts may be detrimental to mountain goats. The regrowth following large fires in mountainous areas create excellent mountain goat habitat. Total elimination of fire would, in time, seriously reduce mountain goat habitat.

Much of the Watershed Area is covered by thick even stands of lodgepole pine. Generally such areas support a very limited variety and density of wildlife. Carefully created openings would enhance habitat by creating "edge" effect. Large openings or extensive thinnings could have adverse effects by disrupting animal movements.

Some of the more unique species, such as grizzly and moose, are already pushed back into the more remote areas of the Planning Unit and will not be significantly affected by the Proposed Action.

Mitigation

It is no longer Forest Service policy to cut all snags within logging areas. The Forest Service is developing guidelines that call for leaving snags for wildlife habitat.

Grazing will be scheduled to avoid adverse impact on important blue grouse nesting areas. Public use restrictions will be considered to prevent wildlife harassment during critical periods such as nesting and wintering.

The Forest Service may adopt a "let burn" policy for low hazard forest fires. Fires benefit some wildlife species. Mountain goat habitat is improved by mountain top fires. Fires in sub-alpine and alpine zones often present less hazards because of lower amount of fuel and natural fuel breaks.

The Proposed Action identifies the important deer winter range within the Planning Unit. Identification is the first step in assuring these areas will be managed to keep their present value.

FAVORABLE EFFECTS

III. FAVORABLE ENVIRONMENTAL EFFECTS

A. Air

The noise, dust, smoke and other pollutants from industrial operations will be less concentrated in the proposed action. Over 200,000 more acres will be available for harvesting the same amount of timber as now being cut. Better dispersal of the temporary air pollutants will result.

B. Minerals

The more extensive road system, resulting from the proposed action, will allow better access to certain areas of the Planning Unit. Mineral prospecting and exploration will be easier in those areas.

C. Socioeconomics

The proposed action will result in easier access to many parts of the Planning Unit for most forest uses.

The Proposed Action will allow planning a timber harvest 22 MMBF higher than what would be possible on the land currently available for harvest.

D. Water

Increased stream and river flows will be available downstream for power generation use.

E. Wilderness

An additional 20,400 acres may be added to the Pasayten Wilderness. The 315,000 acres proposed for Scenic Areas will give seekers of some wilderness type activities an alternative destination.

F. Wildlife

Grouse nesting sites and summer range for deer will be improved by partial cut logging in the pine forest zone. Identified Wildlife Management Areas will be managed to enhance wildlife habitat.

SUMMARY OF ADVERSE EFFECTS

IV. SUMMARY OF PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

A. Air

The seasonal and temporary effect of noise, dust, smoke and the emissions from internal combustion engines will be spread into some areas now relatively free from these elements. Herbicides and insecticides may also cause local short-term air degradation.

B. Energy

To carry out the proposed land use plan will call for use of additional energy supplies above what would be used to maintain the current conditions.

C. Minerals

Prospecting and any future mineral extraction in the Barron-Chancellor area will become more expensive following the Forest Service's proposed abandoning of the Harts Pass-Chancellor Road.

Should the New Study Areas receive Wilderness status, any ores unclaimed by 1984 will be essentially unavailable for future use.

D. Socioeconomics

The annual five million board foot drop in the available timber supply will result in loss of employment in Okanogan County and possibly less money being returned to the county and Federal Governments from National Forest timber sales.

The proposed roading and logging in some of the currently roadless areas will adversely affect those preferring the present opportunities for solitude.

E. Soil

Roads, and other of man's work, will remove additional areas from production. Compaction and erosion will result from roading, logging, and other of man's uses in the Planning Area.

F. Vegetation

All vegetation will be eliminated from areas occupied by permanent roads, rock pits, recreation developments and any other sites occupied by permanent developments. No other adverse effects are expected.

G. Visual

Roads and timber harvesting will be wider spread throughout the Planning Unit. Those objecting to these works of man will be adversely affected.

H. Water

The possibility for water degradation from road building, logging and recreation use will be wider spread throughout the Planning Unit.

I. Wilderness

In certain areas, man's work will come closer to the Wilderness boundaries. They will become more noticeable to Wilderness users. Those favoring Wildernesses will be adversely affected as road building, logging and other of man's developments eliminate certain inventoried roadless areas from future Wilderness consideration.

J. Wildlife

Extending roads throughout the Planning Unit will destroy additional wildlife habitat. Better access will result in greater chances for harrassment of wildlife. Logging and road building will cause stream siltation and subsequent reduction of their productivity. Logging will alter the natural habitat. Some birds and animals will be favorably affected, others will be adversely affected. Roads will interfere with the movement of wildlife and domestic livestock.

SHORT TERM LONG TERM

V. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT, AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Proposed land use plan will allow the use of renewable resources within the Planning Unit and preserve the scenic beauty of the North Cascades. A summary of the specific long-term versus short-term effects of the land use plan on the various resources follows:

A. Air

No long-term effects are expected. Local short-term impacts of dust, noise, smoke and exhaust emissions will occur around most of man's uses.

B. Energy

The Proposed Action will result in a net increase in long-term energy use within the Planning Unit. Building more roads will require the use of more energy. Tapping harder-to-reach and lower volume timber stands will cause more energy to be expended per unit of timber harvested. Additional roads within the Planning Unit will give the public more opportunity to use more energy in their pursuits of recreation.

C. Minerals

If the new study areas become Wilderness additions, prospecting and locating new mineral claims in those areas will be prohibited starting in 1984. Esthetic and environmental requirements will be more restrictive in the Recreation Unroaded, Scenic, and Wilderness Areas. The proposed land use plan will have no other long-range effects on the mineral resources within the Land Use Planning Unit.

D. Socioeconomic

The Proposed Action will result in reducing the amount of timber available for harvest. Minor adverse economical impacts can be expected locally.

E. Soil

Areas committed to roads can be considered long-term uses. Logging and other of man's uses will have temporary effects that will make no long-range differences in the soil's productivity.

F. Vegetation

The Forest Service's current fire management policy, coupled with selective logging, will reduce the number and extent of ponderosa pine. Timber Management Area forests will be made up of younger, thriftier, faster growing trees. Other than these, no major long-term vegetation changes will result from implementing the proposed land use plan.

G. Visual

Roads being built into presently roadless areas will be the major long-term visual effect of this proposed land use plan. Converting the old-growth timber to younger stands will occur on timber management areas. Other visual changes will be of local and temporary nature.

H. Water

Water quality losses will occur around areas of logging and road building. The long-term effect from timber management activities in the Planning Unit will be a slight increase in water yield from the Planning Unit.

I. Wilderness

About 250,000 acres of currently roadless areas will be developed for other of man's uses. These areas would no longer be available for consideration as Wilderness.

J. Wildlife

Long-term reduction of wildlife dependent upon old growth timber for nesting, food, or cover can be expected. An increase in wildlife favoring more open areas will result. The habitat of some animals who require strict avoidance of man will be reduced. No long-term effects to fish life are anticipated.

COMMITMENT OF RESOURCES

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Roads and accompanying rock pits can be considered an irretrievable commitment. They would be very difficult to restore to natural contour and appearance. The commitment becomes more irretrievable as the ground becomes steeper and contains more rock.

With roads considered an irretrievable commitment, roadless areas entered by roads would no longer be available for Wilderness.

Wilderness does not constitute an irreversible or irretrievable commitment of resources. Establishing or declassifying a Wilderness designation takes Congressional action.

Petroleum fuels and Federal funds expended to carry out the proposed action can be considered an irretrievable commitment of resources. They would be unavailable for any other purpose.

Both short-run and long-run losses will necessarily occur in commodities produced from renewable resources such as timber, forage, wildlife, and water. These products are produced continuously and if not harvested periodically, will be lost through old age or nonuse. Nonrenewable resources, such as minerals, will be available until extracted and then depleted permanently.

TWISP-WINTHROP-CONCONULLY PLANNING UNIT

MANAGEMENT AREAS

	Altera-tive A No Action	Altera-tive B Wilderness	Altera-tive C Resources Production	Altera-tive D Proposed Action
	Acres	Acres	Acres	Acres
Inventoried Roadless Area	587,300	0	0	0
Resource Production Area	385,000	0	0	0
New Study Area	0	587,300	0	21,100
Recreation Use Area, Roaded	0	43,800	101,300	30,200
Recreation Use Area, Unroadeed	0	0	241,800	74,000
Scenic Area, Roaded	0	13,800	0	7,200
Scenic Area, Unroadeed	0	0	0	315,600
Timber Management Area	0	298,000	599,700	415,600
Watershed Area	0	0	0	79,100
Wilderness	505,500	505,500	505,500	505,500
Wildlife Management Area	0	29,100	29,200	29,200
Developed Recreation Exist.	203	203	203	203
Development Recreation, Potential	<u>0</u>	<u>276</u>	<u>287</u>	<u>287</u>
TOTALS*	1,478,003	1,477,979	1,477,990	1,477,990

*Differences Due to Rounding

TWISP-WINTHROP-CONCONULLY PLANNING UNIT

ESTIMATED OUTPUTS AT YEAR 2000

	Altera- tive A No Action	Altera- tive B Wilderness	Altera- tive C Resource Production	Altera- tive D Proposed Action	1974 Use
Forage (AUM's x 1000)	33	33	34	34	19
Developed Rec. (Visitor Days x 1000)	290	920	1,000	1,000	260
Dispersed Rec., Roaded (Visitor Days x 1000)	790	760	1,600	900	
Dispersed Rec., Unroaded (Visitor Days x 1000)	380	20	140	230	600*
Wilderness (Visitor Days x 1000)	160	510	170	170	43
All Recreation (Visitor Days x 1000)	1,620	2,210	2,910	2,300	900
Sediment (Tons x 1000)	615	560	630	600	515**
Timber (Million Board Feet)	65	38	68	60	65***
Timber Sale Return to:****					
Okanogan County	\$540,150	\$315,780	\$565,080	\$498,600	\$540,150
Federal Treasury	1,621,100	947,720	1,695,920	1,496,400	1,621,100

* Roaded and Unroaded Recreation

** Estimated Natural Sedimentation Without Man's Influence

*** Programmed Allowable Harvest

**** If Timber Prices Stayed at 1974 Level

ALTERNATIVES

VII. ALTERNATIVES TO THE PROPOSED ACTION

During the Land Use Planning process, the Forest Service studied several ways of managing the Planning Unit. These were displayed in a brochure published during the summer of 1974 asking for public comment. The public's comments aided in arriving at the Proposed Action.

Several alternative actions need be considered. First, what would happen if no action was taken? Alternative A shows that possibility. Next, what would be the result of recommending the maximum amount of land for Wilderness classification? The Forest Service often calls this the Amenity Alternative. It is called the Wilderness Alternative in this Statement. Alternative B covers that possibility. Lastly, what would be the result of trying to get a maximum amount of renewable resources from the Planning Unit? Often called the Commodity Alternative in the Forest Service's jargon, it is called Resource Production in this Statement. Alternative C gives that outlook.

Alternatives B, C, and D give viable ways of managing the Planning Unit. Each could be managed under the rules and guidelines the Forest Service must follow. Each alternative shows different capabilities to fill man's needs and desires. The environmental consequence of each alternative differs.

Alternative A, the No Action Alternative, is not viable. The Forest Service continues to program the full allowable harvest from the Planning Unit. This follows regional policy to program full allowable cut even though much of the Forest is in roadless areas and cannot be entered.

The present allowable cut of 65 MMBF annually greatly exceeds the timber growth rate on the area currently available for harvest. The rate of cutting must drop sharply or the Forest Service will violate its visual and streamside management guidelines within the next decade. It would be physically possible to cut 65 MMBF annually from the Planning Unit under this Alternative for another 50 or 60 years if maximum timber production were the sole goal. For sake of this discussion, we will assume the main goal of this Alternative will be to maintain the present programmed rate of timber sales. Visual, streamside and other environmental goals will be secondary to the timber harvest goal.

A. Alternative A

This alternative shows the effect of taking no action. All lands within the Planning Unit would keep their present status.

The lands of the Planning Unit would fall into three categories. These are: Wilderness lands within the Pasayten Wilderness totaling 505,500 acres. The management of wilderness lands was described earlier. The second category would be the roadless lands. These are all those areas

within the inventoried roadless areas. These roadless areas total 587,300 acres. Under this alternative the management of these lands would keep them roadless. No action that would eliminate possible future consideration of these areas for wilderness would be permitted. That means no logging or permanent developments would be permitted inside the roadless areas. The last classification could be called Resource Production Areas. These include all lands presently roaded or logged. They are available for all forest land uses. Included in this last category are 203 acres of existing campgrounds within the Planning Unit, plus another 276 acres of potential developed recreation sites. This alternative assumes no additional campgrounds will be built. The Resource Production Areas total 385,200 acres.

1. Environmental Impacts

a. Air

Little change from present conditions will result. Most of man's major industrial uses will take place in areas where such uses now occur.

b. Civil Rights

Little immediate change in the Civil Rights posture would result from this Alternative. Rate of employment generated by users of the National Forest would remain much as they are today.

c. Energy

Total energy consumption will remain much as it is today. Some energy uses will decrease as others increase. For instance, road building should taper off as the road system for the Resource Production Area is completed. Helicopter logging will increase as harder to reach areas are logged in an effort to maintain the programmed timber harvest.

d. Forage

This alternative will result in little change in the amount or availability of forage. Domestic grazing could increase somewhat above the present use. Additional range improvements would be needed to reach this increase. No permanent range developments would be permitted in the roadless areas or Wilderness.

e. Minerals

This alternative would have little effect on the minerals resource. The Government would build no new roads in the roadless areas that could aid in mineral prospecting and mining. No new wilderness areas are proposed.

f. Socioeconomic

The present employment rates would be little changed by this Alternative. The present rate of timber harvest could be carried well into the next century, beyond a time of reliable predictions. Any changes would occur because of normal efficiencies in production as result of technical advances.

Neither the Toats Coulee-Chewack Road or the proposed ski area at Sandy Butte could be built under this Alternative. Both projects lie partly in Inventoried Roadless Areas. One assumption of this Alternative prohibits permanent developments in Roadless Areas.

No immediate economic or social changes would result from this Alternative. Some changes would no doubt occur when the timber harvest dropped 50 or 60 years hence. All the old growth timber would then be logged from the Resource Production Area. Then this Alternative would be capable of producing about one-third of the current programmed timber harvest.

g. Soil

Alternative A would concentrate impacts to soils to the Resource Production Areas. Some form of disturbance will occur on all timbered areas within the Resource Production Area.

The fire caused changes in organic material, loss of soil from skid roads, compaction and other effects described in the Proposed Action will occur in the Resource Production Area. Logging in stream side zones and on areas of erodible soils would cause greater erosion from this Alternative than from the Proposed Action.

h. Vegetation

Major vegetation changes would occur only in the Resource Production Area. There, the most apparent change will be the conversion of all the old growth timber stands to young trees. In 50 to 60 years the areas available for logging would have smaller young trees. Ground cover would increase following logging. Non-native grasses would be more wide spread as a result of erosion control practices.

i. Visual

The results of continued heavy logging would soon become visible from most vantage points within the Resource Production Area. All the larger trees would be cut and young trees would give a finer texture to the Resource Production Area. Little change would be visible in the roadless areas or Wilderness.

j. Water

To continue the present rate of timber harvest, would mean heavier cutting along streams. (Remember, we assumed timber

production received precedence over other normal goals in this Alternative.) More stream bank disturbance and less stream shading would occur. More soil would reach the streams. Greater exposure to the sun could raise water temperatures.

k. Wilderness

No changes from present conditions expected. Use will continue to increase by reason of greater interest, more leisure time and population growth. The large roadless area will provide alternate destinations for some wilderness type activities.

l. Wildlife

Wildlife habitat in the Resource Production Area would be greatly changed during the next half century. All the big old trees would be gone. Young well spaced trees would cover the area. Very little variety would exist from place to place. As a result, the variety of wildlife would be reduced. The birds and animals dependent upon old growth for food or cover will be the most severely affected. These include the less visible birds and animals such as the smaller song birds, woodpeckers and some of the rodents. Hawks and owls would be displaced because of lack of nesting sites and reduction of their food supply.

Mule deer would not be severely affected. Increased ground cover would provide them ample food. Most areas will retain enough escape cover for deer.

2. Favorable Environmental Effects

This Alternative would cause no immediate economic or social changes. Forest products would continue to flow from the Planning Unit at the current rate well into the next century.

3. Summary of Probable Adverse Environmental Effects Which Cannot Be Avoided

Logging near stream course will lower water quality due to more stream sedimentation and increased water temperatures.

Wildlife habitat will be greatly modified in the Resource Production Areas. The variety of wildlife will be limited in area.

To continue harvesting timber at the current rate would make it difficult to blend the logged areas into the natural landscape. The sights of logging would soon become very visible throughout the Resource Production Area.

Eventually, a drastic reduction in the timber harvest would occur. One cannot now estimate the economic and social effects of a major drop in timber production 50 or 60 years from now.

4. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The Planning Units current timber outputs could be maintained into

the next century. An abrupt decline in timber production would result when the last of the old growth timber was logged. Dramatic economic and social adjustments might then be necessary. The long-term productivity of the Resource Production Area would not be affected by the accelerated cutting rate.

Short-term water quality degradation would occur during the period of accelerated timber harvest. A return to the Forest Service's regular stream side management practices would improve water quality.

The change in wildlife variety can be considered short-term. Allowing trees to grow to older ages would retain the variety of wildlife habitat and species.

5. Irreversible and Irretrievable Commitment of Resources

Roads, rock pits, fuels and funds can be considered committed in this Alternative for the same reasons given in the Proposed Action. This Alternative will make more of the renewable timber resource unavailable for man's material uses than the Proposed Action. The timber not used will be loss to old age or other causes.

B. Alternative B

This alternative gives the results of studying the maximum amount of land for wilderness.

Under this proposal all the inventoried roadless areas, totaling 587,300 acres would be recommended for New Study Areas for wilderness. There are six management areas in this alternative. These include New Study Areas; Recreation Use Area, Roaded; Scenic Area, Roaded; Timber Management Area; Wilderness; and Wildlife Management Area. Management goals for areas in this alternative would be identical with the like areas in the proposed action.

1. Environmental Impacts

a. Air

The noise, smoke, and other pollutants of industrial operations will be greatly reduced under this alternative. The reduction of pollutants will closely parallel the drop in timber harvest. Most of the adverse environmental impacts affecting the air will occur within the Timber Management Areas. Their extent will be more limited than what would occur under the proposed action.

b. Civil Rights

This alternative would cause a considerable loss of timber industry and service jobs in Okanogan County. As in the proposed action, minorities may bear a greater proportion of the jobs lost.

c. Energy

Alternative B would result in an overall decrease in energy consumption within the Planning Unit. Industrial energy requirements would follow the timber harvest which would be reduced by 40%. Few new roads or road access recreation facilities would be available. The recreation energy consumption should then parallel the areas population tempered by fuel availability and cost.

d. Forage

This alternative will result in little change in the amount or availability of forage. Domestic grazing could increase somewhat above the present use. Additional range improvements would be needed to reach this increase. No permanent range developments would be permitted in the New Study or Wilderness Areas.

e. Minerals

Alternative B could result in up to 587,300 acres of additional wilderness within the Planning Unit. All wilderness areas will be withdrawn from mineral entry starting in 1984. Any minerals not claimed in these new wildernesses by 1984 would be essentially unavailable for use. The New Study Areas contain a great number of mineral claims. Wilderness designation of the New Study Areas would generate more public opposition to those planning mining operations on any of the existing claims.

f. Socioeconomic

Alternative B would result in considerable local social and economic consequences. The allowable cut of the Planning Unit would drop by 27 MMBF annually. Translated to jobs, that would mean 190 less logging and sawmilling jobs than currently needed. An additional 210 service jobs throughout the county would no longer be generated. Okanogan County could well lose 400 jobs as a result of implementing this alternative.

The small town of Twisp would take the brunt of the economic effects. The local timber company may find the modernization of the Twisp Mill too expensive in view of the reduced timber supply. Closure of the Twisp mill would mean the loss of 130 mill jobs plus a reduction in the woods jobs. A loss of a greater number of service jobs would result.

Alternative B would eliminate the possibility of a major ski area at Sandy Butte. The upper third of Sandy Butte lies in the New Study Area where no development would be permitted. This alternative also precludes the building of the Toats Coulee-Chewack Road for the same reason.

g. Soils

Alternative B would give positive benefits to the soil resource. Few new roads would be built and less timber would be harvested. Less soil disturbance and compaction would result than what is now occurring or what would happen under the Proposed Action.

h. Vegetation

The impacts from this alternative would be similar but more limited in area than those of the proposed action. Timber Management Areas managed primarily for timber would be converted to younger trees. Increased ground cover would occur below logged or thinned timber stands. Recreation Use Areas would be managed primarily for recreation. Timber management would be a secondary objective in these areas. They would appear much as they do today.

i. Visual

Few landscape changes would result from implementing this alternative. No new roads or logging would occur outside of the area already committed to these uses. The greatest visual change will be the result of converting the old growth timber stands to younger trees in the Timber Management Areas.

j. Water

Water quality would improve under this alternative. Few new roads would be built. Existing road slopes would stabilize reducing the major cause of stream sedimentation. Logging activity would drop lessening soil disturbance and water pollution from that source.

k. Wilderness

This alternative could double the size of Wilderness within the Planning Unit.

1. Wildlife

This alternative will cause fewer environmental effects to wildlife than the proposed action. Fewer roads will be built meaning less habitat destruction. Reduced logging will mean less habitat alterations. Fewer roads also means less harrassment by man would occur than under the proposed action.

2. Favorable Environmental Effects

Improvements in air, soil and water quality would result from Alternative B. Most of the improvements would be as a direct result of reducing logging and accompanying road building by forty percent. Less energy would be consumed with this alternative than with the Proposed Action. The reduced level of logging and road building would require less energy. Fewer roads would give recreationists less opportunity to use petroleum fuels in their recreational pursuits.

Wildlife habitat loss and changes would be reduced with this alternative from what is now occurring or would occur from the Proposed Action.

3. Summary of Probable Adverse Environmental Effects Which Cannot Be Avoided

Any of the 587,300 acres of New Study Areas designated Wilderness would be withdrawn from mineral entry in 1984. Any unclaimed minerals would be essentially unavailable for use.

The reduction in allowable cut could result in a direct or indirect loss of 400 jobs in Okanogan County.

4. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Alternative B would result in long-term improvements in the three basic resources: air, soil and water. The improvements would come from lower levels of logging and road building. This would result in less noise, exhaust emissions, soil disturbance and logging slash burning. Few long-term changes would occur to the forage, mineral, visual, wilderness, or wildlife resources. Long-term vegetation changes similar to those described in the Proposed Action would occur in the Timber Management Area. Long-term productivity in the Planning Unit would be maintained under this alternative. Much of the timber resources produced within the Planning Unit would be available only for non-consumptive uses. Reducing the planned timber harvest by 27 million board feet would have a long-term result in reducing the number of people able to make a living in Okanogan Co.

5. Irreversible and Irretrievable Commitment of Resources

Neither the Pasayten Wilderness nor any new Wilderness designations can be considered an irretrievable commitment, either designations could be changed. The funds and fuels spent, along with the roads built, would be as irretrievably committed in Alternative B as in the Proposed Action.

Alternative B would result in the greatest amount of the renewable timber resource being unavailable for man's material uses.

C. Alternative C

This alternative is designed to give a maximum amount of renewable resources; wood, water, and forage from the Planning Unit. Timber Management Areas include all general forest areas with at least moderately stable soils. Recreation Use Areas, Roaded, include all important recreation areas with soils acceptable for road building. Recreation Use Areas, Roadless, include much of the higher country with soils generally unsuitable for road building. Wildlife Management Areas are identical with those of the Proposed Action. The Pasayten Wilderness remains unchanged. One feature of this alternative differs from all the other three - this alternative proposes connecting the Toats Coulee-Chewack Road.

1. Environmental Impacts

a. Air

This alternative will result in the widest range of environmental effects on air quality. Timber harvest operations will occur intermittently in those areas supporting commercial timber stands outside of the Pasayten Wilderness. The smoke, dust, noise, odors, etc., from these operations will have short-term effects on air quality. Smoke from fire management activities will be wider spread and more frequent than in any of the other alternatives. Emissions and noise from all vehicles would be wider spread and of greater volume than any of the other alternatives. Total air pollutants would still be of low intensity and well dispersed under this Alternative.

b. Energy

Much of this alternative's increased timber harvest will come from the higher, rugged, more remote areas of the Planning Unit that grow less wood per acre. Some of the more energy consumptive logging methods, such as using helicopters, will be needed to log these areas. As a result, more energy would be used under this alternative than any of the other three. This greater energy use would result in producing more of the material goods desired by man from the Planning Unit.

The more extensive road system needed in this option would require more energy, mainly petroleum fuels, to build and maintain. More roads would encourage more recreational driving and hence, more energy use from that factor.

c. Forage

This alternative would produce slightly more forage than any of the other three. Little additional forage over that produced by the proposed action will be useable by domestic stock. Most of the additional increases occur in some of the more rugged country in the Planning Unit making it unavailable for use.

d. Socioeconomic

The local area will realize the greatest economic return from this alternative. An additional 3 MMBF of timber above the present allowable cut would be available from the Planning Unit. Translated to jobs, that would mean an additional 21 logging and milling jobs plus 23 service jobs within Okanogan County. Based upon 1974 timber prices, the county would get \$24,950 more annually from the National Forest timber sales. The return to the Federal Treasury would increase by \$74,820 annually.

Tying together the Toats Coulee-Chewack Road would cause a number of changes along those routes. Twenty to twenty-five percent of the vehicles using the North Cascades Highway could be expected to use the Toats Coulee-Chewack Road. In 1974 the average daily traffic on the North Cascades Highway exceeded 1,200 vehicles per day. The peak traffic exceeded 3,000 vehicles in one day. Based on these figures, an additional 240-750 vehicles per day could be expected to use the Toats Coulee-Chewack Road. Average daily traffic on the Chewack Road was 121 in 1974. Hunting season gave the highest monthly count, approaching 200 per day in October.

Use of the National Forest campsites along the route would change. Overnight use would replace the present week-end or longer visits. The Loomis-Tonasket area would experience considerable increases in recreation demands. Answering these demands could create a number of seasonal jobs in those areas. The Loomis area would experience acute traffic problems during days of peak use, unless there was an upgrading of roads in that area. Other than increasing the traffic along the Chewack Road, no major changes would result in the Winthrop-Methow Valley area.

e. Soils

This alternative would cause the greatest amount of soil disturbance. Road building plus logging on the higher, steeper areas proposed in this alternative will cause more soil disturbance resulting in increased erosion and soil stability problems which trigger mass soil movements.

f. Vegetation

More opportunity for timber management will occur under this alternative. The old growth timber throughout the Timber Management Areas would be converted to younger faster growing trees. A number of the larger trees would be maintained throughout the recreation areas, specifically for their scenic value. The Forest Service's methods of culturing trees would be permissible on larger areas. Thinning, planting of superior trees, controls of insects and disease, coupled with more land area, will allow greater timber outputs shown for this alternative.

Similar reductions in the range and number of ponderosa pine and increasing ground cover will result in this alternative as in the Proposed Action from the timber management activities.

g. Visual

Man's work would be much more apparent with this alternative than any of the others. Roads and timber harvesting would be wider spread throughout the Planning Unit. As in all the other alternatives, any such activity would follow the Forest Service's visual management guidelines.

h. Water

A greater water yield would result from this alternative. Coupled with this increased water yield will come greater stream sedimentation. Increased sedimentation will result from the greater soil disturbance caused by the more extensive logging and road building within the Planning Unit.

i. Wilderness

The Pasayten Wilderness would become more accessible. Roads closer to its border would allow easier access. Day use, a visit to the Wilderness and back in the same day, would become possible. Total use by the year 2000 would equal that of a somewhat larger wilderness available in the proposed action. Heavy use around access points would present a management problem. Widespread logging and road building throughout the Planning Unit will become more apparent from near the wilderness border.

j. Wildlife

The larger road system serving Alternative C would eliminate the greatest amount of wildlife habitat and result in the most wildlife disturbance. A wider range of timber management activities will cause most habitat reduction of those animals dependent upon old growth timber for food and cover. These same activities will improve summer food supplies for big game. The greater sedimentation resulting from this alternative will cause the greatest adverse effects to the fish habitat.

2. Favorable Environmental Effects

The greater timber yield possible from this Alternative will create the need for about 120 more local jobs than the Proposed Action. Those favoring road access will find many parts of the Planning Unit easier to reach following construction of the logging road systems.

3. Summary of Probable Adverse Environmental Effects Which Cannot Be Avoided

a. Air

The man-caused impacts of dust, smoke, noise, odors, etc., described in the proposed action would result in this alternative too. These impacts would be more frequent and wider spread throughout the Planning Unit.

b. Energy

This alternative would require the greatest total energy use plus the greatest per unit use of energy of any alternative. What that means, the average energy used to produce 1,000 board feet of timber in this alternative would be greater than in any of the other alternatives. The greater energy use results from harvesting timber on steep rough grounds that have less timber per acre than the lower elevation lands.

c. Soils

This alternative would have the most roads. More roads mean more lands removed from production. Greater soil loss would occur from the extensive road system and wider-spread logging.

d. Visual

Roads, logging, shaded firebreaks, and other of man's projects would be wider spread under this alternative than in any other. Those objecting to these signs of man's work will be adversely affected.

e. Water

Alternative C will result in the greatest water quality loss primarily due to soil sediments from increased erosion.

f. Wilderness

Road building and/or timber harvesting will occur in nearly all the roadless areas. Areas so entered can no longer be considered for future wilderness.

g. Wildlife

The results will be similar but more extensive than those described in the proposed action.

4. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

a. Air

No long-term effects are expected. Local short-term impacts of dust, noise, smoke, exhaust emissions will occur around most of man's uses.

b. Energy

This alternative will result in the greatest long-term energy use of any of the alternatives.

c. Minerals

Alternative C will give the best access for mineral prospecting and mining. All areas currently available for prospecting and mining will remain so in the future.

d. Socioeconomic

Following this alternative would provide a larger economic base and generate more jobs within Okanogan County. The jobs generated by this alternative will be typical of employment now found in Okanogan County and would encourage maintaining the area's current culture.

e. Soil

More area will be lost under man's roads and other developments. Additional areas will be available for producing continuing crops of timber.

f. Vegetation

The results will be similar although much more extensive than those of the proposed action.

g. Visual

The results will be similar to that of the proposed action except more extensive.

h. Water

The result of this alternative will be the greatest water yield from the Planning Unit and the greatest water quality loss due mainly from soil sedimentation.

i. Wilderness

Most of the Inventoried Roadless Areas would be roaded or logged and unavailable for future consideration as wilderness.

j. Wildlife

The long-term results would be similar to those of the proposed action except much wider spread and more extensive.

5. Irreversible and Irretrievable Commitments of Resources

Again, the results will be similar to the proposed action except more roads and rock pits would be created. More fuels and Federal funds would be used. Fewer roadless areas would remain for possible future consideration as wildernesses.

CONSULTATION

VIII. CONSULTATION WITH APPROPRIATE FEDERAL AGENCIES AND REVIEW BY STATE AND LOCAL AGENCIES DEVELOPING AND ENFORCING ENVIRONMENTAL STANDARDS

Public consultation with other agencies, organized groups, and individuals began in July of 1973. News releases, a press conference, and a pamphlet announced the start of the Land Use Planning study on the Twisp-Winthrop-Conconully Planning Unit. The brochure contained franked returnable cards to let people indicate they were interested in continuing to receive information on the study. Approximately 300 of these cards were returned. Later a revised time schedule and list of planning assumptions and objective statements were mailed to these people. News releases allowed the public to keep track of the progress of the program.

In July of 1974 a major brochure entitled "An Invitation for your Involvement" was mailed initially to over 400 groups and individuals with an additional 3,500 distributed in person or sent to those requesting them.

The brochure explained the need for and objectives of land use planning and gave a brief description of the planning process. Other information was shown to give the public a better idea of how the area could be managed. Included were graphic displays of current recreation use, forage and timber outputs along with projections of future use and outputs. Small maps were used to show the Planning Unit's resources along with the physical and human constraints to the Unit's use. It also contained a franked, self-addressed response form which could be used by the public.

A slide program containing the same information as the brochure was put together for use in explaining Land Use Planning. During the course of the summer, members of the Planning Team and the District Rangers met with numerous groups throughout the county explaining the Study and inviting response.

A local hour-long radio program entitled "Viewpoint" hosted a Forest official who also explained the Land Use study, and answered telephoned questions. A series of six day-long "question and answer" sessions were held in Seattle, Wenatchee, Spokane, Okanogan, Tonasket and Winthrop. These were not very well attended, even though news releases announcing the sessions were made, prior to them, via newspaper articles and radio spots. The deadline for receiving public input was set for September 28, 1974 but input received up until approximately October 15 was used. Appendix E contains a summary of the input received from the public.

Below is a list of those individuals, groups and agencies recommended to review this Draft Environmental Statement.

A. Federal Agencies

1. Advisory Council on Historic Preservation
2. Agricultural Stabilization and Research Service

3. Bonneville Power Administration
4. Bureau of Land Management, Spokane
5. Bureau of Outdoor Recreation, Seattle
6. Bureau of Reclamation, Boise, Idaho
7. Bureau of Sport Fisheries and Wildlife
8. Corps of Engineers, North Pacific Division
9. Department of Housing and Urban Development
10. Department of the Interior, Office of Environmental Project Review
11. Department of Transportation
12. Economic Development Administration
13. Environmental Protection Agency, Director, Region 10
14. Federal Power Commission
15. National Park Service, Regional Office, Seattle
16. National Park Service, North Cascades National Park
17. National Marine and Fisheries Service
18. Office of Program Planning and Fiscal Management, State of Washington
19. Pacific Northwest River Basins Commission
20. Publications Stockroom, Office of Communications
21. Soil Conservation Service, State Conservationist for Washington
22. U.S. Geological Survey

B. Federal Congressional Delegation

23. Senator Henry M. Jackson
24. Senator Warren Magnuson
25. Representative Joe Prichard - District 1
26. Representative Lloyd Meeds - District 2
27. Representative Don Bonker - District 3
28. Representative Mike McCormack - District 4
29. Representative Tom Foley - District 5
30. Representative Floyd Hick - District 6
31. Representative Brock Adams - District 7

C. State of Washington

32. Department of Ecology, Olympia
33. Department of Game, Olympia
34. Department of Natural Resources, Olympia
35. Department of Parks and Recreation (State Historic Preservation Officer)
36. Interagency Committee for Outdoor Recreation, Olympia
37. Office of the Governor, Olympia
38. Office of the Governor, Wilderness Task Force, Olympia (State Clearing House)
39. State Legislators for Chelan, Okanogan, Whatcom and Skagit Counties
40. Washington State University, College of Forestry
41. Office of Program Planning & Fiscal Management, Olympia

D. County Agencies

42. Board of County Commissioners, Chelan County
43. Board of County Commissioners, Okanogan County
44. Board of County Commissioners, Skagit County
45. Board of County Commissioners, Whatcom County
46. Counties, Washington State Association, Olympia

47. County Planners, Chelan County
48. County Planners, Okanogan County
49. County Planners, Whatcom County
50. County Planners, Skagit County
51. Public Library, Brewster
52. Public Library, Bridgeport
53. Public Library, Okanogan
54. Public Library, Omak
55. Public Library, Oroville
56. Public Library, Pateros
57. Public Library, Tonasket
58. Public Library, Twisp
59. Public Library, Winthrop

E. Others

60. Colville Confederated Tribe, Nespelem

F. Private Organizations and Businesses

61. Alder Gold Copper Co., Spokane, WA
62. Alpine Lakes Protection Society, Bellevue, WA
63. American Forest Institute, Portland, OR
64. American Forestry Assoc., Washington, DC
65. American Institute of Biological Sciences, Inc., Washington, DC
66. American Motorcycle Assoc., Westerville, OH
67. ASARCO, Spokane, WA
68. Aspen Skiing Corporation, Winthrop, WA
69. Atchison Lumber and Logging Co., Tonasket, WA
70. Bear Creek Mining Co., Spokane, WA
71. Boise Cascade, Steilacoom, WA
72. Burlington-Northern, Seattle, WA
73. Cities Service Minerals Corp., Salt Lake City, UT
74. College of Forest Resources, University of Washington, Seattle, WA
75. Crown Zellerbach, Omak, WA
76. Cyprus Mines, Spokane, WA
77. Denver Public Library, Denver, CO
78. Elmer Goodwin & Sons, Chelan, WA
79. Evergreen Helicopters, Inc., Arlington, WA
80. Exxon Company, USA, Missoula, MT
81. Federation of Western Outdoor Clubs, Seattle, WA
82. Forest Resources Library, Seattle, WA
83. Forestry and Range Management Dept., Washington State University, Pullman, WA
84. Geo-Minerals Exploration Co., Seattle, WA
85. Hecla Mining Co., Wallace, ID
86. Industrial Forestry Assoc., Portland, OR
87. King County Management Council, Seattle, WA
88. Landreth Timber Co., Tonasket, WA
89. Magill & Associates, Mercer Island, WA
90. Mason Bruce & Girard, Portland, OR
91. Mazamas, Portland, OR
92. Methow Valley News, Twisp, WA
93. Mountaineers, Inc., Seattle, WA

94. National Forest Products Assoc., Washington, DC
95. National Wildlife Federation, Western Field Representative, Portland, OR
96. Natural Resources Defense Council, Inc., Palo Alto, CA
97. Newmont Mining Corp. of Canada, Ltd., Vancouver, B.C., Canada
98. North American Wildlife Foundation, Washington, DC
99. North Cascades Conservation Council, Seattle, WA
100. Northwest Mining Assoc., Spokane, WA
101. Northwest Steelheaders - Trout Unlimited, Portland, OR
102. Northwest Timber Assoc., Eugene, OR
103. Okanogan Independent, Okanogan, WA
104. Omak Chronicle, Omak, WA
105. Oregon Chapter American Fisheries Society, Newport, OR
106. P & H Exploration & Mining Co., Wenatchee, WA
107. Pacific Northwest Division, National Ski Patrol System, Seattle, WA
108. Pacific Northwest 4-Wheel Drive, Spokane, WA
109. Pacific Northwest Ski Association, Seattle, WA
110. Phillips Petroleum Co., Del Mar, CA
111. Quintana Minerals Corp., Tucson, AZ
112. Radar Electric Company, Inc., Seattle, WA
113. San Poil Lumber Co., Republic, WA
114. Sierra Club, Conservation Director, San Francisco, CA
115. Sierra Club Legal Defense Fund, Inc., San Francisco, CA
116. Sierra Club, Lewiston, ID
117. Sierra Club, Pacific Northwest Chapter, Eugene, OR
118. Society of American Foresters, Mid Columbia Chapter, Omak, WA
119. Society of American Foresters, Rainier Chapter, Randle, WA
120. Society of American Foresters, Washington, DC
121. Society for Range Management, Pacific Northwest Section, Wapato, WA
122. Sunshine Valley Minerals, Inc., Manson, WA
123. Tahoma Audubon Society, Tacoma, WA
124. The National Agricultural Library, Beltsville, MD
125. The Towhee, Tacoma, WA
126. The Wilderness Society, Denver, CO
127. University of Oregon Library, Eugene, OR
128. Washington Cattlemen's Assoc., Ellensburg, WA
129. Washington Environmental Council, Inc., Seattle, WA
130. Washington Forest Protection Assoc., Seattle, WA
131. Washington State Horseman, Inc., Kirkland, WA
132. Washington State Sportsmen's Council, Vancouver, WA
133. Washington Wool Grower's Assoc., Ephrata, WA
134. Wenatchee World, Okanogan Valley Representative, Okanogan, WA
135. Western Forestry and Conservation Assoc., Portland, OR
136. Western Forest Industries Assoc., Portland, OR
137. Western Gold Mining, Inc., Seattle, WA
138. Western Ski Promotions, Seattle, WA
139. Western Wood Products Assoc., Portland, OR
140. Wildlife Management Institute, Portland, OR
141. Wilderness Society, Denver, CO
142. Zosel Lumber Co., Oroville, WA

G. Individuals

143. Mr. Franklin C. Blocksom, Twisp, WA
144. Mr. Garnett E. Cannon, Portland, OR

145. Mr. Bobbie Joe Fenison, Seattle, WA
146. Mr. Dan Gebbers, Brewster, WA
147. Dr. A. R. Grant, Langley, WA
148. Mr. Spenst M. Hansen, Rexburg, ID
149. Ms. Margo Kriete, Ephrata, WA
150. Mr. Edward O. Logan, Jr., Logan, UT
151. Ms. Peggy McCauley, Redmond, WA
152. Ms. Christine Rader, Peshastin, WA
153. Mr. John R. Swanson, Berkeley, CA



APPENDIX

TITLE 2300 - RECREATION MANAGEMENT

APPENDIX A

Appendix A

 National Forest CAMP AND PICNIC SITE	
LEVELS OF: ENVIRONMENTAL MODIFICATION & RECREATION EXPERIENCES	
	
DEVELOPMENT SCALE	
1 primitive	<p>Minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. No obvious means regimentation. Spacing informal and extended to minimize contacts with others. Motorized access not provided or permitted.</p> <p>Primitive forest environment is dominant. Rudimentary and isolated development sites beyond the sight or sound of inharmonious influences. Maximum opportunity for experiencing solitude, testing skills and compensating for the routines of daily living. User senses no regimentation. Feelings of physical achievement in reaching site is important.</p>
2 secondary primitive	<p>Little site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. Little obvious regimentation. Spacing informal and extended to minimize contacts with others. Motorized access provided or permitted. Primary access over primitive roads.</p> <p>Near primitive forest environment. Outside influences present but minimized. Feeling of accomplishment associated with low standard access is important but does not necessarily imply physical exertion to reach site. Opportunity for solitude and chance to test outdoor skills is present.</p>
3 intermediate	<p>Site modification moderate. Facilities about equally for protection of site and comfort of users. Contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density about 3 family units per acre. Primary access to site may be over high standard well traveled roads. VIS, if available, is informal and incidental.</p> <p>Forest environment is essentially natural. Important that a degree of solitude is combined with some opportunity to socialize with others. Controls and regimentation provided for safety and well-being of user sufficiently obvious to afford a sense of security but subtle enough to leave the taste of adventure.</p>
4 secondary modern	<p>Site heavily modified. Some facilities designed strictly for comfort and convenience of users but luxury facilities not provided. Facility designs may tend toward and incorporate synthetic materials. Extensive use of artificial surfacing of roads and trails. Vehicular traffic controls present and usually obvious. Primary access usually over paved roads. Development density 3-5 family units per acre. Plant materials usually native. Visitor Information Services frequently available.</p> <p>Forest environment is pleasing and attractive but not necessarily natural. Blending of opportunities for solitude and socializing with others. Testing of outdoor skills on site mostly limited to the camping activity. Many user comforts available. Contrast to daily living routines is moderate. Invites marked sense of security.</p>
5 modern	<p>High degree of site modification. Facilities mostly designed for comfort and convenience of users include flush toilets; may include showers, bath houses, laundry facilities, and electrical hookups. Synthetic materials commonly used. Formal walks or surfaced trails. Regimentation of users is obvious. Access usually by high speed highways. Development density 5 or more family units per acre. Plant materials may be foreign to the environment. Formal VIS services usually available. Designs formalized and architecture may be contemporary. Mowed lawns and clipped shrubs not unusual. (Class 5 sites only provided in special situations or close to large cities where other lands are not available.)</p> <p>Pleasing environment attractive to the novice or highly gregarious camper. Opportunity to socialize with others very important. Satisfies urbanites need for compensating experiences and relative solitude but less intensive than in classes 1-4. Obvious to user that he is in secure situation where ample provision is made for his personal comfort and he will not be called upon to use undeveloped skills.</p>

Appendix B

APPENDIX B

Code of Federal Regulations

Title 36 Part 294.1

294.1 Recreation Areas.

Suitable areas of national forest land, other than wilderness or wild areas, which should be managed principally for recreation use may be given special classification as follows:

(a) Areas which should be managed principally for recreation use substantially in their natural condition and on which, in the discretion of the officer making the classification, certain other uses may or may not be permitted may be approved and classified by the Chief of the Forest Service or by such officers as he may designate if the particular area is less than 100,000 acres. Areas of 100,000 acres or more will be approved and classified by the Secretary of Agriculture.

APPENDIX C

BASIC JOBS TO SERVICE JOBS RATIO

OKANOGAN COUNTY 1970

Definitions:

Basic Jobs - Jobs created by use or production of natural resources. They typically include fields of agricultural and forestry, mining, and manufacturing.

Service Jobs - Jobs resulting from the demand for goods and services by holders of basic jobs. Include all jobs not relying on the natural resources for their existence.

Theory:

By dividing the total employment by the basic jobs you can find out how many service jobs each basic job generates.

Total Okanogan County Employment May 1975	12,010	<u>1/</u>
Basic Jobs		
Agriculture	2,770	<u>1/</u>
Manufacturing	1,530	<u>T/</u>
Mining and Misc.	280	<u>T/</u>
Government	800	<u>2/</u>
Recreation	300	<u>3/</u>
Confederated Tribes	130	<u>4/</u>
Total Basic Jobs	5,810	

$$12,010 \div 5,810 = 2.1 \text{ Total jobs per basic job.}$$

Ratios derived this way tend to be on the high side. All transfer payments (social security benefits, retirement benefits, dividends, welfare payments, etc.) coming from outside the county should be included as part of the basic employment. Spending of these payments within the county will generate service jobs. Transfer payments amounted to 14 percent of Okanogan County's total personal income in the years 1970 through 1972. 5/ The origin of these payments is unknown. If all came from outside the county, the ratio would be lowered to 1.8.

- 1/ Okanogan County Area Employment and Unemployment Development, June 1975.
- 2/ State and Federal employees involved with the management of natural resources - for example, The Department of Natural Resources, U.S. Forest Service, Bureau of Reclamation (Grand Coulee Dam), etc.
- 3/ Estimated at 30 percent of service employment.
- 4/ Bureau of Indian Affairs and Confederated Tribal employees working in natural resources fields.
- 5/ Table 5.00 P Bureau of Economic Analysis 8/27/74.

Appendix D

APPENDIX D

From

FOREST RESOURCES AND THE TIMBER ECONOMY OF OKANOGAN COUNTY by CHARLES L. BOLSINGER (UNPUBLISHED DRAFT REPORT)

Employment per million board feet of timber cut in Okanogan County for logging and sawing, planing and millwork, and veneer and plywood for selected years between 1950 and 1972 and projected rates at 10-year intervals to 2020 are shown in the following tabulation.

<u>Year</u>	<u>Logging</u>	<u>Industry^{1/}</u> <u>Sawing, planing, and millwork,</u> <u>and veneer and plywood</u>
(Number of employees per million board feet of timber harvested)		
1950	2.16	4.91
1955	2.27	4.67
1960	2.29	8.45
1965	1.45	5.97
1970	2.30	6.97
1972	1.72	5.30
1980	1.75	4.80
1990	1.67	4.00
2000	1.61	3.35
2010	1.53	2.70
2020	1.50	2.20

^{1/} Reported employment prior to 1960 is probably somewhat understated, thus tending to exaggerate the change between 1955 and 1960.

APPENDIX E

Summary of Input from Public Involvement

Public response was mostly generated by a brochure about the planning unit published by the Okanogan National Forest. Additional input resulted from interest in the possible development of a large destination type ski resort within the planning unit. Of the responses that mentioned the ski resort, 162 made no mention to the rest of the unit.

A total of 489 responses were received, representing 1006 signatures. Sixty-five percent of the Inputs (I) representing 54% of the signatures (S) came from Western Washington. From Okanogan County came (I) 19% and (S) 37%. Input came mostly in the form of returned response forms (50.9%) and personal letters (46%). These represent 40% and 33% of all persons responding. Three petitions accounted for 26% of all persons responding.

Individuals claiming no affiliation with any group accounted for the majority of the numbers of inputs (74%) and 37% of the number of persons, while those affiliated with informal groups accounted for the majority of signatures (44%) but only 5% of the number of inputs. Falling into this category were petitions, form letters and several people signing a letter. Households accounted for 13% of both inputs and signatures.

Wilderness (General)

A total of 146 inputs (I) representing 264 signatures (S) spoke to the Wilderness issue. Of these 84% of the inputs and 79% of the signatures were pro-Wilderness. Western Washington inputs and signatures were 87% and 78% pro-Wilderness. Okanogan County inputs and signatures were 53% and 70% in favor of Wilderness.

Inputs and signatures for other areas combined were 93% and 90% pro-Wilderness.

Reasons Supporting Wilderness

- Only way to assure roadless area will remain primitive.
- Without that protection, under the pressure of some future shortage (due to poor past management) the local Forest Supervisor will open new timber harvest and roads.
- Timber potential is low.
- Save the wild areas for the future, inevitable use by hikers.
- Unit is particularly important because it contains prime wildlife areas.
- In coming years Wilderness will become most valuable resource. To fail to realize now would be critical error.
- Nationwide wilderness is our most precious resource.
- In such a hectic, changing and transitory society, it is imperative that we have a few constants. Knowing that Wilderness is there is one of these.

Reasons Opposing Wilderness

- Discrimination in favor of small percent.
- Deprives majority of users.
- Shuts some groups and classes of people out.
- This type of single use lockup is wrong and unnecessary.
- Due to terrain and vegetation, many small areas will always be Wilderness anyway.

Other Comments and Suggestions on Wilderness

- Thank God for the Pasayten.
- Urge increased classification of Wilderness areas as the best management alternative.
- Need for both wilderness and roadless.
- Emphasize.
- Consider all roadless areas for wilderness.
- Possible need to consider lower elevation areas for wilderness.
- Use wilderness quality index as an overall guide as follows: High - study for wilderness; Medium - keep unroaded and study later; Low - full resource development.
- I have no use for wilderness.
- Could do with slightly less.

Sandy Butte Ski Area

Of the 364 inputs received that spoke of the Ski Hill, 162 did not mention the rest of the Planning Unit. From Okanogan County, 51 inputs (69%) and 57 signatures (48%) were pro-ski area. Western Washington inputs and signatures were 171 (80%) and 335 (86%) pro-ski area. Other inputs and signatures were 42 (98%) and 54 (98%) pro-ski area.

Reasons Supporting Building a Destination Type Ski Resort at Sandy Butte

- Will bring employment, business and activities. (3)
- Best use of area. (9)
- Very beneficial to valley and area. (2)
- There is a great need for ski areas such as this. (17)
- Respects Aspen Corporation record and concern for environment. (10)
- Will create an extraordinary area. (2)
- Recreation is becoming a more important part of everyone's life.
- Would contribute greatly, not only to skiers, but all people interested. (2)
- Good for local and State economy. (15)
- Fuels economy and recreation benefits outweigh ecological benefits.
- Need to keep pace with rest of nation, particularly Colorado.
- Needed to attract out-of-state business and provide setting for longer ski vacations for in-state skiers. (2)
- Skiing is good for people.
- Clean healthy industry that will stimulate economy. (2)
- Ideal area for recreational ski development. (3)
- Would be well patronized.
- Would enhance area for regular public.
- Would benefit people (people are more important than places).

Reasons Opposing Ski Resort

- It will ruin valley.
- Ski hills make permanent scars.
- Skiing is only rich man's leisure.
- Fear urbanization of upper Methow Valley.
- Extra people would detract from rural peacefulness of valley.
- Sufficient ski areas now.
- Better locations are available.
- Will bring air and water pollution.

Timber Harvest

A total of 94 inputs representing 158 inputs spoke to the timber harvest issue. Seventy-one percent of the inputs and 80% of the signatures were pro-timber harvest.

Reasons Supporting Timber Harvest

- Selective harvest has not harmed scenic resource.
- Timber is only wasted if not harvested.
- Environment will adjust to regrowth.
- Timber builds roads that recreationists use.
- Timber can be harvested in scenic areas with all consideration for wildlife and watershed.
- Public willing to accept the esthetics of a well managed forest, particularly if they know the trade off in social and economic cost.

Comments Not in Favor of Timber Harvest

- Favor recreation over timber harvest.
- Timber demand has never been less.
- Stop overcutting to remove all mature timber.
- Feel public timber should not be cut as long as any timber, public or private, is exported.

Road Construction

Of 71 inputs received which spoke to roads, 30 (44%) representing 42 signatures (13%) were pro-road. A petition with 232 signatures from the Loomis area protested the construction of the Toats Coulee Creek-Chewack River road tie through.

Reasons Supporting Road Construction

- Need more roads so people may see areas that they otherwise could not, due to health, age, etc.
- Roads up some suitable drainages would give many people a look at our resources.

Reasons Against Constructing Roads

- Once asphalt is laid the land is useless.
- Roads create bad traffic flow.
- Recreation roads are net loss to recreation.
- Taxpayers should not have to subsidize unprofitable logging by paying for roads.

Comments and Recommendations Concerning Roads

- Don't build high standard roads where lower standard would do.
- Maintain all present roads for access to the public.
- No additional roads are now necessary or desirable.
- Don't think roads should be improved for tourists.
- Logging roads should be closed following logging to prevent unjustified damage by public use.

Appendix E

Off Road Vehicle Use

Of 42 inputs that spoke to ORV use, 6 (14%) representing 23 signatures (38%) were pro-ORV use.

Reasons Against ORV Use

- People go to high country to get away from such things.
- Causes ruts, dust and noise along trails.

Comments and Recommendations Concerning CRV Use

- Favor more access for off road use.
- Favor separate use areas for ORVs.
- Encourage ORV use in timber management areas rather than in recreation and scenic areas.
- Close all high country trails to ORVs.
- Oppose U.S. Forest Service use of motor bikes.
- Motorcycles and snowmobiles should be restricted to roads.
- Oppose motorcycle use on any trail.
- Use should be restricted on fragile areas.
- Should be banned from areas where exceptional opportunities for solitude exist.

Developments Along North Cross State Scenic Highway

Of the inputs that spoke to campgrounds and picnic areas along the Highway, 73% of the inputs (169) and 82% of the signatures approved of some development.

Reasons Supporting Campgrounds and Picnic Grounds Along North Cross State Highway

- Present facilities overloaded.
- Need more places for stopping.
- High tourist use, more campgrounds would help.

Reasons Opposing Development

- Only detract from area.
- Too much environmental damage.
- Intensive use would threaten fragile nature of area.
- Valley too narrow.
- Would spoil area (2).
- More suitable areas exist.
- NCH has had unfavorable impact. Campgrounds would invite further impact.
- Would invite further overuse in area already overrun.
- Will degrade area.
- Not a suitable area.
- Not needed.
- Should be in valley bottom (2).

Comments on NCH Campgrounds

- Build one rest area for each way and allow overnight stops.
- Favors auto based facilities.
- Will help car campers have wilderness type of experience.

Cedar Creek

Of 152 inputs that referred to a road up Cedar Creek, 109 (72%) representing 140 signatures (65%) were in favor. 23 inputs representing 45 signatures favored Wilderness classification for the drainage.

Reasons Supporting Road up Cedar Creek

- Would provide better access to Silver Star.
- Good side trip off NCH.
- Enables all ages access to scenic area.

Reasons Opposing Road

- Would destroy pristine qualities.
- Not sufficient timber or recreation demand to warrant
- Trail is adequate (3).
- Unneeded impact on drainage.
- Would cause environmental damage.

Other Comments on Cedar Creek Drainage and Road

- Leave as is (4).
- Road would be net loss to recreation.
- Build low impact roads to produce certain yield.
- Add to Wilderness.

Harts Pass Road

Of 179 inputs on the Harts Pass road, 65 (36%) representing 112 signatures (38%) favored improvement, while 111 inputs (62%) and 183 signatures (61%) favored maintaining it in its present state. Only 3 inputs and signatures were in favor of abandoning the road.

Reasons for Improving Harts Pass Road

- Greater degree of safety (2).
- One of few areas where North Cascades can be viewed from car.
- Considerable traffic here.

Reasons for Maintaining as is

- Upgrading road would draw campers and trailers which would overload facilities.
- Will limit use.
- Improvements would increase overuse.

Other Comments on Harts Pass Road

- Allow transportation by permit only.
- Keep as is (4).
- Abandon road to Slate Peak.
- Even if maintained "as is" Dead Horse Point may need some improvement.

Harts Pass Chancellor Road

Of the 156 inputs which spoke to the road from Harts Pass to Chancellor, 93 (60%) representing 114 (53%) signatures, were in favor of keeping the road open.

Reasons in favor of Chancellor Road

- Provides trail access in Mt. Baker.
- To meet demand.

Other Comments on Chancellor Road

- Leave as is (4).
- Make safe (2).
- Adding too much sediment to Slate Creek.
- Abandon beyond mines (2).
- Why subsidize mining interests with tax payer's money?

Toats Coulee - Chewack Road

Of 209 inputs commenting for or against the Chewack Toats Coulee tie through, 109 inputs (52%) were against building the road, but 385 of the signatures (71%) were opposed. This heavy difference between signatures and inputs was the result of a petition opposing the tie through from residents in the Loomis area. Okanogan County inputs were 55% in favor of building the tie through, but with the petition, signatures from the County were 89% opposed. Western Washington inputs were 56% against while signatures were 52% in favor. Total inputs (56%) and signatures (75%) favored double lane construction.

Reasons Supporting Construction of Tie Through

- Would disperse traffic over wider area.
- Wasted money if not completed.
- Would be valuable recreationally.
- Would make Wilderness more accessible (2).
- Would give many people a chance to see the country.
- Better access for dispersed recreation.
- Will open east end of Pasayten to more people reducing pressure on more accessible areas.

Reasons Opposing Construction of Tie Through

- Disruptive traffic increase would occur.
- Turn quiet area into noisy one.
- Not needed (4).
- Would diminish value of existing car camps (3).
- Would increase litter.
- Would destroy character of Chewack Valley.
- Toats Coulee needs no more dust.
- Too expensive (2).
- Would detract from recreational experience.
- Would totally destroy solitude (2).
- Would be potentially disastrous to Wilderness.
- Too much environmental damages.
- Would increase wildlife disturbance.
- Area receiving more visitors than it can accommodate now.
- Would create bottleneck in Loomis area (2).

Comments on Road Standard of Tie Through

- No need for "super road."
- Single lane with occasional turn out.
- No "high speed" road.
- Don't pave.

Sawtooth Roadless Area

A large proportion of the inputs on the Sawtooth roadless area (62%) favored Wilderness. The next highest number favored unroadeed use (7%). Okanogan County inputs were evenly divided between unroadeed and wilderness use (5 and 5) with one input favoring roadeed use.

Reasons Supporting Wilderness Use

- Low potential for timber.
- Known for beauty.
- Prime Wilderness quality.

Other Comments on Sawtooth Area

- Should have been Wilderness long ago..
- Road okay up some drainages (3).
- Prefer trails to roads in all areas (2).
- Roads are far enough up drainages now.
- Keep it scenic.
- Build roads up to Eagle, Martin and South of War Creek.
- Area boundary should be at existing roads and logged off areas.

Tiffany Roadless Area

The largest block of inputs on the Tiffany roadless area supported Wilderness (51 inputs, 65%). Next highest was Scenic (16 inputs, 21%) followed by unroadeed use (10 inputs, 13%). No area trends were apparent.

Driveway Butte Roadless Area

Of 61 responses showing preferences for certain management methods, 31 (51%) favored Wilderness. Next was Unroadeed use with 20 (33%) responses, followed by Scenic with 7 (11%) responses. No area trends were apparent.

Comments on Driveway Butte Roadless Area

- Natural extension to Glacier Peak Wilderness and National Park.
- Keep unroadeed as possible while logging with tight constraints.
- Now adequate trail access.
- Remove from list of unroadeed areas.
- Road where practical.
- Don't deface western slopes.
- Keep Natural as possible because it can be seen from both Harts Pass road and NCS Highway.
- Primarily for big game - limit grazing.
- Helicopter log.

Long Swamp and Long Draw Roadless Areas

Of 93 inputs showing a preference for a specific management method, 81 (87%) favored Wilderness. No other method approached this with scenic the closest rival at 8 (9%) responses. No area trends were apparent.

Reasons Supporting Wilderness Use

- High Wilderness rating.
- Logical extension of existing Wilderness (3).
- Fine family Wilderness areas are beautiful but not too rugged.
- Would help reduce use in Horseshoe Basin.

Other Comments

- Originally on Forest Service list of prime candidates.
- Add to Pasayten (7).
- Give consideration to wildlife.
- Abandon Iron Gate road if too much use on Horseshoe Basin.
- Leave alone - don't allow hunting or fishing.

Wolf Creek Roadless Area

A large portion of the inputs that specifically mentioned the Wolf Creek area favored Wilderness management (29 inputs (47%), 48 signatures (36%)) and Roadless Management (24 inputs (39%), 38 signatures (29%)). Roaded Use was favored by only 3 inputs (5%), but these represented 41 signatures (31%). Multiple Use was favored by 4 inputs (6%), representing 4 signatures (3%). Scenic area designation was favored by 2 inputs (1%), representing 2 signatures (3%).

Timber harvest in the Wolf Creek area was favored by 7 inputs and 45 signatures and was opposed by 4 inputs representing 5 signatures. No trends by the area of origin of the inputs were apparent.

Reasons Supporting Wilderness

- We are short of good primitive valley hikes.
- Area offers fine hiking.
- Ranked high.
- Rare lowland trail.

Reasons Supporting Roadless Designation

- Trails will satisfy recreation needs of people deprived of enjoying such conditions by too much timber management.
- Already heavily travelled.
- Difficult to road. Steep and erodible soils.

Other Comments

- Some roaded area would not be detrimental.
- Harvest by helicopter when possible.
- Difficult to road.

- Above North Fork should be recreation area.
- Encourage mineral development.
- Gardner Meadows should remain Scenic Unroaded area.
- Use as research natural area (4).
- Leave unroaded (7).
- Phase out grazing.
- Build roads and manage for maximum timber benefit.
- Build low impact roads.

Liberty Bell I and II Roadless Areas

A total of 65 respondents spoke directly to these areas. Almost all recommended study for Wilderness.

Comments on Liberty Bell I and II Roadless Areas

- Make Wilderness (38).
- Make Scenic.
- Known for beauty.
- Particularly lovely Area.
- Forest protection area not adequate.
- Preserve spectacular scenery.
- Important wildlife habitat.
- Do not make Wilderness.

Lucky Jim Roadless Area

A total of 27 respondents commented on the Lucky Jim Roadless Area. Of these 24 stated a specific preference for the type of management. Wilderness was specified by 11 responses and Unroaded Use was favored by 10. The other three recommended Roaded Use.

Comments on Lucky Jim Roadless Area

- Leave unroaded (8).
- No Wilderness.
- Make Wilderness (11).
- Forest use roaded (2).

Appendix F

APPENDIX F

Station: Okanogan
Elevation: 910 Feet
Period: 1931-1947

Month	Mean Temp. °F	Precipitation (Inches)
January	24.2	1.23
February	29.5	1.23
March	42.5	.77
April	53.1	.88
May	60.9	.77
June	67.2	1.45
July	75.0	.28
August	73.3	.26
September	64.6	.58
October	51.8	.89
November	37.0	1.50
December	29.2	1.81
ANNUAL	50.7	11.65

Station: Winthrop
Elevation: 1,755 Feet
Period: 1931-1952

Month	Mean Temp. °F	Precipitation (Inches)
January	17.0	1.84
February	24.3	1.46
March	36.2	.84
April	47.6	.69
May	55.2	1.05
June	61.9	1.33
July	69.7	.43
August	68.6	.44
September	58.0	.66
October	48.2	1.05
November	33.7	1.91
December	21.6	2.60
ANNUAL	45.2	14.30

Sources: Columbia-North Pacific Region Framework Study: Appendix V;
Water Resources; 1967, pp 3-7.

U.S. Weather Service; Climatic Summary of the United States;
Supplement for 1931 through 1952.

APPENDIX G

Correlation of Timber Yield Figures

The Brochure, "An Invitation for Your Involvement", distributed during the summer of 1974, showed the total possible annual timber yield of the Planning Unit as 57.7 MMBF. That total came from the Land Use Planning effort and must be correlated to the Forest's Timber Management Plan.

In developing the Land Use Planning timber estimates, it was assumed that all commercial forest lands would be thinned at least twice. A precommercial thinning would thin out the trees when they were still too small to sell. Later a commercial thinning would thin out the stand by selling off the surplus and undesirable trees.

The Timber Management Plan is based upon a broad scale inventory of the Forest's timber resources. The timber inventory figures gave a statistically valid way to determine how much timber may be cut on the forest each year. The inventory works well for forest or ranger district size tracts of land. It is too broad a scale to estimate the timber production on the 157 sub-units used to estimate the output of the Planning Unit.

The timber growing potential of the 157 sub-units compares directly to each other. The total timber potential derived from the 157 sub-units must be correlated to the Timber Management Plan. The following shows how that was done:

	MMBF
Total possible annual timber yield from the Okanogan National Forest	104.9 ^{1/}
The Planning Unit contains 73.8% of the Forest's Total Yield 104.9 X .738	77.4
Mt. Baker-Snoqualmie and Wenatchee National Forest Timber volume not included in Okanogan National Forest's Timber Management Plan	4.2 ^{3/}
Timber Management Plan total for the Planning Unit 77.4 + 4.2	81.6
Land Use Planning total for the 157 sub-units in the Planning Unit	57.7
Adjustment necessary to correlate the Land Use Planning figure to the Forest's Timber Management Plan 81.6 + 57.7	1.4142

1/ From page 14 of the Forest Timber Management Plan. Total of columns 3 and 4.

2/ From 5 Year Action Plan.
Forest Harvest (88.1 MMBF) less Tonasket's (23.1 MMBF) = 65.0 MMBF
 $65.0 \div 88.1 = 73.8$ percent

3/ Estimated from sub-units and adjusted upward to same bases as Management Plan.

Appendix G

TIMBER VOLUME ADJUSTMENT TABLE

Alternative	Land Use Planning Timber Volume Estimate	Correlation Factor	Estimated Annual Yield MMBF
A - No Action	26.7	1.4142	37.8
B - Wilderness	26.7	1.4142	37.8
C - Resource Production	48.0	1.4142	67.9
D - Proposed Action	42.3	1.4142	59.8

Two factors cause the drop in harvest between the Timber Management Plan and the Proposed Action. First, the Proposed Action excludes 33,500 more acres of National Forest land, some of which contains commercial timber, from normal timber harvest. Second, Visual Management considerations account for a 9 percent reduction in timber harvest under the Proposed Action. The Timber Management Plan reduced the timber harvest approximately 6 percent for visual consideration (Landscape Management Units).

APPENDIX H

LAND AREA DEFINITIONS

- A. High elevations non-soil to very shallow soil areas characterized by rock outcrop; talus slopes, alpine meadows and some perpetual snow and ice fields. Vegetation, when present, consists of alpine species. Nonforested.
- B. Low to high elevation non-soil to very shallow coarse textured soil areas characterized by very steep glacial valley headwalls and sideslopes that contain alpine meadows, talus slopes and avalanche chutes. Forested, but timber is scattered and patchy and is generally noncommercial alpine, but some timber of low commercial value is present. Slopes highly variable and range from 20 to over 100 percent.
- C. High elevation very shallow to moderately deep coarse and moderately coarse textured soil areas. Found in glacial basins. Forested, with both commercial and noncommercial species present. Marginal due to inaccessibility. Slopes generally 10 to 40 percent.
- D. Low to high elevation, non-dissected to slightly dissected sideslopes occurring on granitic bedrock and glacial till of mostly granitic origin. Soils are shallow to deep and moderately coarse to coarse textured. Near ridgetops, timber is spotty. Lower slopes are timbered. Slopes range from 40 to over 75 percent.
- E. Mid to high elevation, highly dissected sideslopes occurring on granitic bedrock and glacial till of mostly granitic origin. Soils are shallow to moderately deep and moderately coarse to coarse textured. Near ridge tops timber is spotty and noncommercial. Mid and lower slopes are timbered. Slopes range from 40 to over 75 percent.
- F. Low to mid elevation, non dissected to slightly dissected sideslopes occurring on granitic bedrock and glacial till of mostly granitic origin. Soils are very shallow to moderately deep and moderately coarse to coarse textured. Nonforested. Occurs mostly on south and west exposures. Slopes range from 40 to over 75 percent.
- G. Low to high elevation, non-dissected to slightly dissected sideslopes occurring on altered sedimentary and volcanic bedrock. Soils are shallow to deep and moderately fine to moderately coarse textured. Near ridgetops timber is spotty and noncommercial. Lower slopes are timbered. Slopes range from 40 to over 75 percent.
- H. Low to high elevation, highly dissected sideslopes occurring on altered sedimentary and volcanic bedrock. Soils are shallow to deep and moderately fine to moderately coarse textured. Near ridgetops timber is spotty and noncommercial. Lower slopes are timbered. Slopes range from 40 to over 75 percent.
- I. Low to mid elevation, slightly to highly dissected sideslopes occurring on altered sedimentary and volcanic bedrock. Soils are very shallow to shallow and moderately fine to moderately coarse textured nonforested. Occurs mostly on south and west exposures. Slopes range from 40 to over 75 percent.

Appendix H

J. Low to mid elevation valley floor areas containing deep to extremely deep, moderately coarse to coarse textured soils on alluvial terraces and outwash fans. Forested. Timber is commercial. Slopes range from 10 to 40 percent.

APPENDIX I

INVENTORIED ROADLESS AREA LAND ALLOCATIONS

Approximate Acreage of National Forest Lands By Management Area

Name	RARE Number	RARE Score	National Forest Area	New Study Area	Recreation Use Area Roaded	Scenic Area Roaded	Scenic Area Unroaded	Timber Management Area Unroaded	Watershed Area	Wildlife Area
Beaver Creek	801	57	13400						13400	
Black Canyon	802	54	13600						13600	
Diaster Creek	804	123	6900						6900	
Driveway Butte	805	107	6900						6900	
Falls Creek	806	59	7300						4100	3200
Farewell Creek	807	82	5600						5500	100
Fourteennile	808	74	8600	2800						5800
Granite Mtn.	809	108	20200						20200	
Hungry Ridge	810	54	14500						14500	
Liberty Bell	812	156	145400		700	3100	7000	134600		2200
Long Swamp	814	173	20500	18300						100
Lucky Jim	815	97	11900		800	11000				500
Middle Creek	816	54	14400			1700			11100	
Midnight Mtn.	817	151	17600			6300			3900	7400
Pebble Creek	819	67	20500						3700	16800
Sawtooth	820	173	96800			6200			89400	1200
Sherman Peak	821	121	12000						12000	
South Ridge	822	60	6400						5800	600
Thirtymile	823	66	21600							12600
Tiffany	824	174	25000						18000	3400
Twentymile	825	142	40600						8400	32200
Twisp River	826	106	30800		1400	11900			8300	9200
Wolf Creek	827	162	14500			12600			1600	300
Canyon Creek	None	None	5630						5630	
Lake Creek	None	None	3270						3270	
Last Chance	None	None	3410						3210	
TOTALS			587310	21100	2900	73800	7200	200	106800	69600

APPENDIX J

INVENTORIED ROADLESS AREA DESCRIPTIONS

BEAVER CREEK NO. 801

General Description - The Beaver Creek Roadless Area is characterized by rounded ridges and V-shaped valleys. Elevations range from 4100 to 6800 feet. The area encompasses 13,400 acres of National Forest lands.

Vegetation varies from the Pine Forest Zone at lower elevations up to the Subalpine Zone at the higher points. Thick timber stands grow on the north slopes and in the valley bottoms. Scattered trees occur on the south facing slopes. Ponderosa pine with bitterbrush, beardless wheatgrass and Idaho fescue occupy the lower south facing slopes. Douglas fir occurs at mid elevations and gives way to Englemann spruce and lodgepole pine at higher elevations. Some juniper, Labrador tea and grouse whortleberry make up the ground cover at higher elevations.

The area serves as permanent or migratory habitat for many animals. The most common large animals include mule deer, coyote, and black bear. Smaller animals include beaver, porcupine, pine squirrels and snowshoe hare. Many small birds, a number of hawks and an occasional Golden eagle along with both blue and Franklin grouse occur in this area. Cutthroat trout are native to the streams.

Forest roads access this Roadless Area on all but the north side.

Current Use

The Beaver Creek cattle allotment includes most of the Roadless Area. Cattle graze the area from June through September.

Recreation use is very light and limited almost entirely to hunting. One trail, No. 421, follows Beaver and Blue Buck Creeks.

Wilderness Resource

Little sign of man's work exists within the Roadless Area. Trail No. 421 traversing the Area gives the main evidence of man's activities inside the Area. Man's uses of adjoining Areas becomes quite apparent near the border of the Beaver Creek Area. A fire road built to access the 1970 Forks Fire runs along the east boundary north along the ridge top from Starvation Mountain. Timber harvest occurs regularly on the west and south borders.

Opportunities for solitude within the Area are fair. The Pebble Creek Roadless Area to the north increases opportunities for solitude.

BLACK CANYON NO. 802

General Description - This roadless area covers a wide elevation range. From a high point of 5600 feet on Cooper Mountain, the area drains north to Black Canyon Creek. The low point of 1600 feet occurs on the Forest boundary above the Creek.

The amount of precipitation drops rapidly in the eight-mile width of this Roadless Area. Thirty-five inches or more falls on the ridgetops in the west. The lands immediately above the Methow Valley receive about 15 inches of precipitation. The Area's northerly aspect allows it to support timber stands on areas receiving little rainfall.

The Mitchell Creek fire burned over 70% of this area in 1970. Ponderosa pine occurs on the lower elevations with lodgepole pine taking over the burned area. Ground cover includes willows and alders in wetter areas. Ceanothus along with pinegrass and other grasses occupy dryer sites.

Wildlife species found in the Black Canyon area are common throughout the area. They include mule deer, black bear, coyote, bobcat, snowshoe hare, pine squirrel, grouse, along with numerous hawks and smaller birds.

Current Use

Little use occurs in the Area now. Black Canyon sheep allotment includes part of the Roadless Area. Sheep graze through the Area on alternate years. Recreation attractions are few and the use is very light. Fall hunting use makes up almost all of the recreation use within the Black Canyon Roadless Area.

Wilderness Resources

Several wide tractor-built firelines cross through this roadless area. Although reseeded and supporting good stands of grass, the firelines will be very noticeable for years to come. Black Canyon's narrow slope and surrounding nearby roads limit opportunities for solitude.

DISASTER CREEK NO. 804

General Description - The Disaster Creek Area includes all of the steep walled Disaster Creek drainage and part of the Lake Creek drainage. Elevations range from nearly 8000 feet on Obstruction Peak on the Area's western edge down to 3200 feet on Lake Creek. The Pasayten Wilderness lies along the Area's north boundary. Farewell and Falls Creek Roadless Areas join the Disaster Creek Area on its south and west borders. This area includes 6900 acres of National Forest lands.

Most of the area falls in the Mountain Forest Zone. Attractive stands of Douglas-fir along with a few ponderosa pine and other associated species can be found in the lower Lake and Disaster Creek drainages. Dense stands of

smallish lodgepole pine cover most of the rest of this zone. Grouse whortleberry carpets the ground under the lodgepole stands. The upper ridgetops fall into the Supalpine Zone with lodgepole, pine subalpine fir, and white bark pine.

The almost continuous stands of lodgepole pine throughout the Disaster Creek Area limits the variety and number of wildlife. Black bear and Franklin grouse, both of which feed on the grouse whortleberry, are quite common. Mule deer, porcupine, bobcat, plus a number of smaller birds and animals, can be found in the Area.

Current Use

Recreation makes up almost all the present use of the Disaster Creek Roadless Area. The rugged country and dense lodgepole stands concentrate most of the use along the trails. The Lake Creek trail receives heavy use by those heading for Black Lake and beyond inside the Pasayten Wilderness. The Crystal Lake trail leads to Crystal Lake and the upper Disaster Creek drainage. Fishing in Crystal Lake provides an additional attraction for hikers and riders heading in that direction. Lake Creek also provides a limited amount of fishing.

Wilderness Resources

The Disaster Creek Area shows little evidence of man's activities. The two trails through the Area plus an unobtrusive helipad at Crystal Lake are the major man-made developments. Opportunities for solitude are excellent. Those willing to get off the trails and willing to take on some rugged cross-country hiking will see few other visitors. Some minor disturbance will be noticed along the road and campsite on Lake Creek.

DRIVEWAY BUTTE NO. 805

General Description - Driveway Butte is a roadless area lying outside of the Golden Horn and Liberty Bell areas recommended in the North Cascades Plan of the early seventies. The Golden Horn Area is entirely included as part of the Liberty Bell Roadless Area of this report.

Driveway Butte Roadless Area lies northwest of Early Winters. Its boundaries include the breaks above the Methow River, the river itself, Hardscrabble Creek and Delancy Ridge.

The Area's western one-third is typical high mountain glacial terrain with cirque basins, numerous avalanche tracks, high gradient streams and steep headwalls. The eastern two-thirds is less steep with fewer streams.

On the south, Delancy Ridge isolates this area from Early Winters Creek and the North Cascades Highway. The Ridge reaches up to 7000 feet. The Area's lowest point is on the Methow River above Pattlesnake Campground at 2800 feet.

Much of the higher western part shows characteristics of Alpine and Subalpine

Life Zones due to high elevations and steep northerly exposure. Heather and grasses along with some scattered and stunted white bark and lodgepole pine cling to the rocky slopes. Lower slopes support Englemann spruce and silver fir. To the east one encounters the Mountain Forest Zone. Douglas-fir becomes the most common tree with pinegrass the typical ground cover. Ponderosa pine occurs at lower elevations.

Driveway Butte's varied life zones offer habitat to many wildlife species. Mule deer occur throughout the area during the summer. Black bear are quite common. Mountain goats, pika and marmots live in the rugged western part. A large number of hawks and even the golden eagle have been sighted on the area along with numerous smaller birds and animals.

The Methow River is the only fish bearing water in the Area.

Trails give access to the area. Driveway Butte Trail No. 450 leaves Klipchuck Campground and switchbacks to the top of Delancy Ridge and onto Driveway Butte. The Pasayten stock driveway enters the Area at the southeast corner, crosses to the northwest and exits at Rattlesnake Creek. This old driveway is no longer used. No trail tread was built for the stock driveway and in spots it can be followed only by the rusting signs noting its passage.

Several Forest Service helispots make up man's other developments in this roadless area.

Driveway Butte contains 6400 acres, all National Forest land.

Current Use

Boulder Creek cattle grazing allotment covers most of the Driveway Butte Area. Hunting makes up most of the current recreation use. Some hiking and riding takes place during the summer.

Wilderness Resources

Great numbers of sheep were driven over the Pasayten Driveway in the years past. That use still shows by changes in or lack of ground cover, some eroded areas and in places, one or more trails left by many hooves. Many years of non-use have blurred these signs, leaving them recognizable only to the knowledgeable eye.

The Driveway Butte trail and one constructed helispot on Delancy Ridge are the only other signs of man's uses of this area.

Roads approach within a mile of all but the west border of the Driveway Butte Area. Still the area remains well isolated from their influence. Delancy Ridge cuts off any noise from the North Cascades Highway. It also puts a 3000 foot elevation barrier between the Highway and ridgeline. The bluffs dropping into the Methow Valley also form an imposing barrier into this area. Driveway Butte joins the 145,000 acre Liberty Bell Roadless Area. Opportunities for solitude are quite good.

FALLS CREEK NO. 806

Falls Creek Area consists of moderately steep walled canyons topped by rounded or benched off ridgetops. Falls Creek itself flows through a gentle U-shaped valley. Elevations range from about 4200 feet in the lower Falls Creek drainage to nearly 8000 feet at Obstruction Peak on the Pasayten Wilderness boundary.

Developments include the Falls Creek road contracted in 1972 and completed in 1974, and a helispot constructed for fire and other emergency access on top of Mt. Barney.

The area includes 7300 acres, all National Forest lands.

Most of the Falls Creek Area lies in the Mountain Forest Zone. The higher ridgetops enter the Subalpine Zone. Lodgepole pine in typically dense stands, make up the most common timber type. Englemann spruce appears in the wetter valley bottoms and some patches of Douglas-fir can be found in the lower Falls Creek drainage. Grouse whortleberry is the most common ground cover, especially under the lodgepole stands.

Grouse, deer and bear are the most commonly seen game birds and animals. The smaller predators, coyote and bobcat, are present in moderate numbers. Their prey, snowshoe hare and smaller rodents, live throughout the Area. A variety of birds can be seen in the Area during certain seasons of the year. Falls Creek supports a fair population of small cutthroat trout.

Current Use

Man makes little use of this Area now. Dense lodgepole stands coupled with rounded ridgetops present a rather monotonous terrain throughout most of the Area. Hunting and fishing have increased lately because of the construction of the Falls Creek road.

Wilderness Resource

The Falls Creek road penetrates the roadless area for over 3 miles. It leaves a very visible mark along the valley bottom. The road limits the chances for solitude in the main drainage bottom and the short drainages coming in from the north. Upper Falls Creek abuts the Pasayten Wilderness giving good opportunities for solitude there.

FAREWELL CREEK NO. 807

Farewell Creek Roadless Area includes the entire Farewell Creek drainage. Farewell Creek lies in a deep canyon with moderately steep walls. Minor drainages enter the main canyon from both the north and south sides.

Elevations range from 7800 on the top of Mt. Barney down to about 3000 feet where Farewell Creek enters the Chewack River Canyon. Two minor developments

exist in this Roadless Area. About 4-1/2 miles of the Crystal Lake trail, No. 517, follows along north side of Farewell Creek before crossing the ridge into the Disaster Creek drainage. The Forest Service built a helicopter landing spot along the ridge near Mt. Barney.

All 5600 acres in this Roadless Area are National Forest lands.

Most of this Roadless Area falls into the Mountain Forest Zone. The upper elevation ridgetops exhibit subalpine characteristics. Dense stands of Lodgepole pine cover most of the Area, indicating a history of past fires.

Current Use

Recreation makes up most of the present use. Hikers and riders use the trail to Crystal Lake. Some hunting occurs in the area during the fall. Thick stands of Lodgepole pine hinder and make cross-country travel unpleasant. The higher ridgetops plus the trail give the best travel routes.

Wilderness Resources

Man's current works in the Area are not very distracting. Traffic noise from the Chewack Road can be heard from the lower part of the Area. Chances for solitude are excellent in the upper drainage. This Area totals a 5600 acres but adjoins the roadless areas on all but the east side. This block of roadless area then joins the one-half million-acre Pasayten Wilderness.

FOURTEENMILE NO. 808

General Description - The Fourteenmile Area as written up in the National RARE Study includes the Long Draw New Study Area. The Long Draw New Study Area is described in the body of the environmental statement. The rest of Fourteenmile Study Area is an area of broad rolling ridges that lies entirely in the Toats Coulee Creek drainage. Elevations range from about 4400 feet in the North Fork Toats Coulee Creek drainage to 6700 feet at the top of Hodge's horse pasture. This Area's northern border follows the Pasayten Wilderness area boundary for a mile and the southern boundary of the Long Draw New Study Area for another mile. The Iron Gate road separates this area from the Long Swamp Roadless Area.

About two miles of road and over 100 acres of thinning slash lie inside the Fourteenmile boundary above the junction of Iron Gate and Toats Coulee Roads. The roads and slash resulted from the Toats Coulee Timber Sale sold in the late sixties.

Southern exposure slopes are grass and shrub covered and the northern exposures are shrub and timber covered. Many fires burned through the area during the 30's and 40's. As a result of the fires young Lodgepole pine covers most of the timbered areas.

The most abundant variety of wildlife is probably found in the northeast portion of this area, where willow and Englemann's spruce grow in marshy bottoms. Fur bearing mammals like beaver, martin, mink, weasel are common inhabitants of these wet areas. Some waterfowl, marsh birds, swallows, shrews, bats, and some

hawks, prefer wet areas. In addition, many terrestrial species are attracted to the riparian zone that separates wet areas and adjacent vegetation because of the abundance of food.

Current Use

Current use includes some recreation use and grazing. Part of the Area is included in the Horseshoe Basin sheep allotment. This allotment is grazed on alternate years by large bands of sheep. The gentle open brush and grass slopes lend themselves to cross-country hiking and riding, but recreation use remains low because of a lack of focal points within the Area.

Wilderness Resources

Other than the Toats Coulee Timber Sale, there is little evidence of man's works within the Area. The roads bordering both sides carry primarily recreation traffic. The views to the south and east from the Area show timber management activity on both National Forest and State lands.

Opportunities for solitude can be considered only fair throughout most of the Area. Road access on all but the north increase chances for meeting other travelers. The Fourteenmile Area totals 8600 acres; 2800 acres fall in the Long Draw New Study Area.

GRANITE MOUNTAIN NO. 809

General Description - The Granite Mountain Roadless Area is characterized by broad timbered ridges and V-shaped valleys. The northern part of the Area drains into Salmon Creek and Conconully reservoir. The southern part drains west to Beaver Creek. Elevations range from 3500 feet at Salmon Basin to the 7844-foot summit of Old Baldy. Several trails cross the Area. Most of the trails are little used except the one leading to Beaver Lake. The Area totals 20,200 acres all of which are National Forest lands.

A number of roads and timber sales fall inside Granite Mountain's boundary. Beaver Timber Sale, sold in June 1971, built about 2 miles of road and logged several hundred acres inside this area northwest of Beaver Lake. Several more miles of road are inside this area's boundary in Cabin, Granite, West Fork Salmon, and McCay Creek drainages.

Most of the Area is in the Mountain Forest Zone. Douglas-fir and larch occur on those areas without recent fire history. Extensive stands of lodgepole pine testify to many fires in the past. The higher elevation Starvation and Granite Mountains exhibit subalpine characteristics. Lodgepole pine remains the most common tree in that zone. Old Baldy juts up to over 7800 feet. Toward the top are stunted white bark pine and heather found in Alpine Zones.

The Granite Mountain Roadless Area offers a great variety of habitats ranging from stream bottoms of the Salmon Creek basin to the summits of Old Baldy, Starvation, and Granite Mountains. Elevation changes of 4,000 feet add to the

variety of habitat types for many wildlife species. Fur bearing mammals like beaver, racoon, mink, weasel, skunk, occur along the stream bottoms of Salmon Creek and the wet marshy areas along Lightning Creek. Hummingbirds, several species of woodpeckers, flycatchers, swallows, jays, chickadees, nut-hatches, wren, thrushes, kinglets, warblers, and sparrows occur throughout the forested areas. Eagles, hawks, owls, bobcats, occasional mountain lions, are predators in the area. Talus slopes at higher elevations provide habitat for pikas and marmots. High ridges and forest openings provide good summer ranges for deer populations.

Current Use

Part of three grazing allotments are within this roadless area. Ryan allotment covers the very northern part, while Salmon Basin includes most of the southeastern part. The Beaver Creek allotment covers part of the Beaver Creek drainage within the Granite Mountain Roadless Area. Cattle range through those areas with desirable forage during the summer months.

Recreation use is light over most of the Area. Beaver Lake offers fishing and camping opportunities and is an area of more concentrated use. Most of the streams flowing through the Area are too small to provide much fishing opportunities. Hunting occurs throughout the Area during the fall.

Wilderness Resources

Roads enter or contact 80% of Granite Mountain's boundary. Signs of hunters camps and cattle use are quite common along the lower fringes of the Area. The bulk of the Area lies in the Granite Mountain-McDaniel Mountain area. That area is surrounded on more than three sides by active timber management areas or roads. The northern area toward Mt. Baldy is more rugged and allows more possibilities for solitude. The Pebble Creek Roadless Area joins the Granite Mountain Area on the northwest side improving chances for solitude there.

The Beaver Creek Roadless Area is somewhat separated by the Starvation Mountain road and a fireline running north on the ridge from Starvation Mountain. The extensive stands of lodgepole pine limit travel to trails. The dense timber stands throughout the area generally limit vistas from within the Area.

HUNGRY RIDGE NO. 810

General Description - This Area exhibits rolling topography etched by stream and glacial action. Most streams flow northeast toward the Methow River. Elevations vary from 2200 feet just above Squaw Creek to over 6200 feet on Fox Peak.

Most of the Hungry Ridge Area lies in two life zones. The Pine Forest Zone occurs at lower elevations with the Mountain Forest Zone above it. Scattered ponderosa pine over ceanothus and grasses occupy the dryer southern slopes. Douglas-fir and lodgepole pine grow on the northern slopes with some willow and alder on wetter sites.

Wildlife and bird species present vary with the seasons. Mule deer and numerous

small birds occur within the Area. Bear, bobcat, cougar, coyote, snowshoe hare, some woodpeckers, owls and many smaller animals are year around residents.

Developments include Trail No. 430 following Squaw Creek. A tractor constructed fireline was built across the southeast corner of the Hungry Ridge Area during the 1970 fire. The fireline remains very visible although it was quickly reseeded to prevent erosion.

The area includes over 14,500 acres, all of which are National Forest lands.

Lodgepole pine covers most of the higher elevations. These stands originated after the 1929 Camas fire. Another 640 acres was burned during the 1970 fires. Douglas-fir and ponderosa pine occupy smaller areas on the lower slopes. Grass and brush and a few scattered ponderosa pine occur on the south slopes.

Current Use

Two grazing allotments cover the entire Roadless Area. McFarland cattle allotment covers the higher elevations while the Middle sheep allotment includes the lands to the east. Cattle range through the Area each year. Sheep graze over the allotment in alternate years.

Recreation use remains light due to limited attractions within the Area. Dense lodgepole areas make cross-country travel unattractive. Hunting is the primary recreation use.

Wilderness Resources

While entirely surrounded by roads, within the Roadless Area are few signs of man's works. Fire control work and cattle grazing are the greatest signs of man's use. Opportunities for solitude can be rated only fair. The Area's limited size prevents good insulation from the sights and sounds of man's uses on the fringes.

LIBERTY BELL NO. 812

General Description - The Liberty Bell Roadless Area includes the Liberty Bell, Golden Horn and most of the Harts Pass areas from the North Cascades study of the late 60's and early 70's. The North Cascades Highway divides Liberty Bell into two parts. Liberty Bell is a large area of steep rugged mountains. Ridges are generally sharp or knife-edged. Major valleys show the broad U-shape typical of glaciated valleys. Some permanent snowfields can be found but not to the extent common further west in areas of higher precipitation. Elevations range from 1800 feet on Ruby Creek to nearly 8900 feet at Silver Star's Peak.

Trails and helispots along with past and present mining operations are the most common developments in the Area. The Pacific Crest Trail No. 2000 passes through the Liberty Bell Area. Many other trails, some feeding the Crest Trail, give access to many parts. Over a dozen helispots for fire or other emergency use are along ridgetops or in other open areas.

This area has a long history of mining exploration. The discovery of gold in Slate Creek in 1879 started the first rush. Signs of early mining activity can be found throughout the Area. Present mining work is concentrated in the Harts Pass, Slate Creek, and Bridge Creek Areas.

The Liberty Bell Area includes 145,000 acres. All but 100 acres is National Forest land.

High elevations coupled with shallow soils results in most of the Area being in Subalpine or Alpine Zones. At these elevations, trees grow stunted and widely scattered. Grass, huckleberry and heather are the most common ground cover. Attractive and varied timber stands grow along the North Cascades Highway, in Ruby, Granite, and Early Winters Creek. Typical west-side old growth Douglas-fir stands can be found along Ruby Creek. The Early Winters drainage makes an interesting study of a transition forest. Subalpine fir and Englemann spruce grow in the Washington Pass Area. As one goes down the highway, Douglas-fir, western red cedar, and white pine become common. In the lower reaches of the Roadless Area, ponderosa pine and bunchgrass become the predominant vegetation.

Liberty Bell's combination of both east and west side conditions makes for a wide variety of wildlife habitat. Mountain goat, ptarmigan, marmots, bear and pika inhabit the high country. Martin live in the old growth forest areas. Other fur bearers, mink, otter and beaver live along the many streams. Deer range through most of the Area during the summer and fall. A great variety of birds can be found in this area. The golden eagle, many hawks, owls, plus the raven, live at least part of the year here. Both the blue grouse and "fool hen" or Franklin grouse are common. Numerous smaller birds from woodpecker to hummingbird to robin can be seen.

All the larger streams support trout. Rainbow and dolly varden can be caught in the lower reaches of Ruby, Granite and Canyon Creeks. Cutthroat trout live in the upper reaches. Cutthroat were also introduced into several of the lakes in the Area.

Current Uses

Recreation is the main use of the Liberty Bell Area. Both the North Cascades Highway and the Pacific Crest Trail have national reputations. The very scenic high-mountain country plus a few high lakes and many streams give many recreational focal points. Several mountain peaks challenge climbers.

Some mineral prospecting continues. Small scale placer mining operations start up sporadically in Ruby and Slate Peaks. Greater mineral activity used to occur in Slate, Mill, and East Creek drainages. One company is doing some core drilling in the Bridge Creek drainage just off the North Cascades Highway.

Two active grazing allotments lie partly within the Liberty Bell Roadless Area. The Boulder Creek cattle allotment includes part of the lower Early Winters Creek Area. The Harts Pass sheep allotment includes some of the Roadless Area

around Harts Pass. Cattle are on the range each year while the sheep are herded to their areas on alternate years.

Wilderness Resources

This area's terrain and climate overwhelms man's developments within it. The results of man's past and current mining efforts look puny compared to the massive disarray of avalanche paths common throughout the Area. Travelers welcome the trails as routes to travel through the rugged country.

Traffic along the heavily used North Cascades Highway eliminates any chance for solitude in the Granite Creek and Early Winters Creek drainages. Away from the highway, the Liberty Bell's size and rugged terrain offer excellent opportunities for solitude. To the west lies the North Cascades National Park. To the south the Lake Chelan National Recreation Area and the Sawtooth Roadless Area. To the east, lightly used Harts Pass road separates the Liberty Bell Area from the Pasayten Wilderness, and on the north the Liberty Bell Area joins the Pasayten Wilderness.

LONG SWAMP NO. 814

General Description - Two contrasting landforms occur in the Long Swamp Area. The eastern 3/4 includes an area of broad high ridges. The west part plunges down into the steep walled Chewack River Canyon. Elevations range from 3600 feet on the Chewack to over 7800 feet on the slopes of Windy Peak. The area drains south to either the Toats Coulee Creek or the Chewack River.

The Pasayten Wilderness borders this area on the north and west. Roads border the other two sides, the Iron Gate road on the east and the Toats Coulee road to the south.

Developments include several trails, the Chewack No. 510; Windy Creek Trail No. 362; and Windy Trail No. 342. A short drift fence enters the Area just west of the Middle Fork of the Toats Coulee Creek. In the thirties, a road was built to give access to a pole cutting operation on Hicky Hump. Now, long abandoned and grown up in trees, it is difficult to follow. Long Swamp Roadless Area totals 20,500 acres of National Forest land.

Most of the Long Swamp Area is in the Subalpine Zone. Extensive lodgepole pine stands show fires were common in the past. Douglas-fir, larch, ponderosa pine and aspen become more common on the lower elevation sites. Non-forested areas include the alpine slopes of Windy Peak, the steep rocky parts of the Chewack River Canyon, and the dry south-facing grassy slopes between the Toats Coulee Road and the Iron Gate Road.

The portion of Long Swamp Area between the Middle Fork of Toats Coulee Creek and Hodges Horse Pasture, has many small openings mixed with patches of hardwoods. The variety of habitats between the creek bottom, the openings, the rocky outcrops, the mix of hardwoods and conifers, plus an elevation change of 2,000 feet, provide a diverse ecosystem rich in wildlife. Fur bearing mammals, shrews, and some flycatchers are common inhabitants of creek bottoms. Woodpeckers, hummingbirds, warblers, chickadees, nuthatches, wrens, thrushes, and bluebirds, are

commonly found in the mix of hardwoods, conifers and openings. Meadow voles, field mice, ground squirrels, sparrows, red-tail and Swainson's hawks, kestrels, and coyotes are all found in these forest openings.

The mix of forests and openings also provide excellent summer range for mule deer. Yellowbelly marmots colonize some of the rocky outcrops. Elsewhere in Long Swamp most of these species occur in lesser numbers and variety. The wet Long Swamp itself harbors fur bearing mammals and other species attracted to wet habitats, but in lesser numbers. The change caused by the construction of a large road along the swamp, the disturbance factor of traffic, and cattle grazing in this bottom make this area less attractive to a wide variety of wildlife species.

Current Use

Recreation and livestock grazing are man's main uses of the Area. The Chewack and Windy Creek trails give major access routes into the Pasayten Wilderness. The Upper Chewack River is an attractive fishing spot. Hiking and riding are the main summer uses. Hunting takes over in the fall.

The Hoseshoe Basin sheep allotment covers part of the Long Swamp Roadless Area. Sheep are herded to the Area on alternate years.

Wilderness Resources

Two nonconforming developments exist in the Long Swamp Roadless Area. A short drift fence and the old road over Hicky Hump. The fence extends less than 1/2 mile into the Area from the Toats Coulee Road. The old road over Hicky Hump is so overgrown that it is undetectable in many places. The Toats Coulee Road deadends above the Chewack River Canyon. It carries light recreation and administrative traffic. Dense timber on the convex slope above the road quickly muffle the light traffic noises.

Long Swamp joins the Pasayten Wilderness. Once one gets away from the roads that border the Area on the east and south, opportunities for solitude are good. The Roadless Area gives depth to the narrow eastern part of the Pasayten Wilderness.

LUCKY JIM NO. 815

General Description - The Lucky Jim Roadless Area includes all roadless lands that drain northeast directly into the Methow Valley between the Wolf Creek and Cedar Creek drainages. These streams all have high gradients with deep V-shaped valleys and numerous avalanche tracks.

This Roadless Area starts at just above the valley floor at around 2400 feet in elevation. Mt. McKinney marks the high point at over 6400 feet. Lucky Jim Bluffs lie in the center of the Roadless Area. The Bluffs are one of the more rugged of the natural features found in the upper Methow Valley.

Several helispots, including one rather prominent one at the top of McKinney

Mountain and a livestock driveway over Sandy Butte make up the developments in the Roadless Area. Much of the potential Sandy Butte ski area lies in this Roadless Area. The Lucky Jim Area totals 11,900 acres of National Forest lands.

Vegetation is thick on the north slopes except where disrupted by avalanches and rock falls. South slopes are less well vegetated, with some slopes having patchy stands of timber. Principal tree species include Douglas-fir with some ponderosa pine at lower elevations.

The open timber stands on Lucky Jim's southern aspect slopes make for good deer summer range. Black bear and grouse are also plentiful. A wide variety of other birds and animals common to the North Central Cascades can be found in this area.

Current Use

The northern part of the Area lies in the Boulder cattle allotment. Other uses are quite minor. Hunting makes up most of the recreation use. This area's greatest current value is as a scenic background for the Methow Valley.

Wilderness Resources

Interior of this Roadless Area has been touched fairly lightly by man. Of several helispots, only one is noticeable. The stock driveway gives slight evidence of man's use of the Area. Few people enter the Area. The nearly vertical bluffs discourage direct entry from the Methow Valley. The chance of meeting other people in the Area is quite low, still the opportunities for solitude are also low. The entire area faces the Methow Valley. Traffic sounds can be heard from many spots within the Poadless Area.

To the west and south lie the Sawtooth and Wolf Creek Roadless Areas. A greater feeling of remoteness occurs as one approaches these other roadless areas.

MIDDLE CREEK NO. 816

General Description - The Middle Creek Area's topography ranges from gently rolling hills to deep V-shaped valleys and fairly sharp well-defined ridges. Outcrops of bedrock are common on the steep southern slopes. The Roadless Area goes as low as 2400 feet in the Gold Creek drainage. Bryan Butte on the Methow-Chelan divide is the high point at 7855 feet. Roads 3110 on the north and 3107 to the south provide access to this area. Developments include the Bryan Butte Trail No. 418 and a helispot along the same ridgeline. This area includes 14,400 acres of National Forest land.

Vegetation present varies greatly due to the extreme elevation range. Near alpine conditions exist on Bryan Butte. Lodgepole pine covers other high elevation areas recently burned over. Englemann spruce occupies wet areas

and some patches of subalpine fir exist on the north slopes. Douglas-fir becomes a prominent tree on the mid-elevations with ponderosa pine occupying the lower dryer sites. Lower south slopes are typically open bunchgrass areas with scattered ponderosa pine and bitterbrush.

The wide elevation difference present in Middle Creek Roadless Area results in a big range of wildlife habitat. A correspondingly large number of wildlife species including big game, large predators, furbearers, and other small mammals are present. Both large birds such as Golden eagle, hawks, blue grouse, Franklin grouse, owls, along with numerous small bird species, are represented.

Current Use

Man's most extensive use of the Middle Creek Poadless Area is for livestock grazing. Two allotments cover the entire Roadless Area. The McFarland cattle allotment takes in the higher westerly half with the Middle sheep allotment covering the rest of the Area.

Recreation use remains light. Hunters like the lower open south slopes and the Area becomes a popular hunting spot each fall. Rock hounds are often attracted to the Area because of the nearby "Gold Creek."

Wilderness Resources

Few signs of man's developments are visible from the interior of the Roadless Area. Developments outside the Area become more apparent as one approaches the fringes. Opportunities for solitude are somewhat limited due to roads nearly surrounding the Area. The very westerly part of the Middle Creek Area joins up with the Sawtooth Roadless Area.

MIDNIGHT MOUNTAIN NO. 817

General Description - The Midnight Mountain Roadless Area includes all of the north wall of the Twisp River Canyon from North Creek to Canyon Creek Ridge. Also included are the upper drainages of Canyon and Little Bridge Creeks. The Twisp River Canyon part is a steep rocky south-facing wall. Many deep V-shaped canyons form the upper parts of Canyon and Little Bridge Creeks. The entire area drains south into the Twisp River.

Elevations range from 3600 feet in Little Bridge Creek up to the top of Mid-night Mountain at nearly 7600 feet.

Rocky soils and southern aspects common throughout the Area create a harsh environment. Grass and shrubs occupy these south facing slopes with scattered trees in some of the more favorable areas. North slopes are densely timbered, predominant with Douglas-fir and some ponderosa pine.

Wildlife species present include those commonly found in North Central Washington. The most notable would be the mountain goat. A few whistling marmots announce

man's intrusion into the higher areas. Mule deer summer in the Area, as do a variety of small birds.

In the past, Slate Lake has been stocked and supported cutthroat trout. It is subject to winter kill and now thought to be barren.

A number of trails access the area. Maintained trails include the one to Scatter Lake. Trail No. 403 goes to Slate Lake and then over to Little Bridge Creek Road, and Trail 404 goes from the Twisp River Road over Canyon Creek Ridge and then to Little Bridge Creek Road. Little Bridge Creek Road No. 3401 continues inside the originally drawn Roadless Area boundary for nearly two miles. The road and adjacent timber harvest area are part of the Little Bridge Creek Sale sold in May 1970.

Four helispots plus a rather large garbage dump at Little Slate Lake are other signs of man's uses in this area.

Midnight Mountain totals 17,600 acres of National Forest lands.

Current Use

Recreation uses and livestock grazing are the main uses of the Area now. Summer recreation use consists mainly of short day-hikes or rides out of the Twisp River Valley. Most of the recreation use occurs during the hunting season. The Area is a popular deer hunting spot and at least one commercial packer takes parties into the Area and beyond.

The Little Bridge Cattle Grazing Allotment covers the entire roadless area. Cattle graze the areas desirable and accessible to them.

Wilderness Resources

Midnight Mountain Roadless Area's size and shape alone would somewhat limit the chances for a Wilderness experience. The chance for such an experience are much enhanced when adjoining roadless areas are considered.

Little Bridge Timber Sale, sold in 1970, was overlooked when this roadless area's boundaries were drawn. The road and logging entered deep into the Area. Other developments include the several trails and four helispots. Three of the helispots fall in natural openings and are unobtrusive.

PEBBLE CREEK NO. 819

General Description - This Roadless Area is mainly the Pebble and South Fork Boulder Creek drainages. Both drainages flow northwest through deep V-shaped canyons cut into granite bedrock. Beaver Creek Roadless Area joins Pebble Creek on its south boundary and Granite Creek Roadless Area on its east boundary. Elevations range from 2600 feet on Boulder Creek to the 7844 foot summit of Old Baldy.

The most evident developments in this Roadless Area came from the control efforts and later timber salvage of the 1970 Forks Fire. Nearly 5,000 acres

of the Roadless Area was burned over by the fire. A road was built into Beaver Meadows on the Roadless Area's southeast corner, an old fire road on the South Fork trail location was reopened and extended. This latter road is over three miles long and reaches two miles up the South Fork drainage. The tractor-built firelines with large helispots stopped the fire on its east side. Developments not connected with the fire include Trail 369 leading from the Middle Salmon Boulder Road to Old Baldy and Trail 526 from Pearrygin Creek along the area's southern boundary to Beaver Meadows.

This area is entirely National Forest lands and totals 20,500 acres.

Rehabilitation efforts following the Forks fire resulted in a good catch of grass over the entire burned area. Great numbers of tiny lodgepole pine seedlings can now be seen over much of the burn. Outside the burn, lodgepole pine is the most common tree in this Roadless Area. Englemann spruce grows in wet areas and Douglas-fir and ponderosa pine occur on the lower slopes. The wet marshy Beaver Meadows and the high, rocky Old Baldy are the only non-tree covered areas.

The Forks burn makes good summer habitat for deer and the mountain bluebird. Other animals commonly found in the Pebble Creek Area include the black bear, coyote, bobcat, along with many smaller mammals. The more visible birds include several species of hawks and both the Franklin and blue grouse. A great variety of smaller birds use the Area during certain seasons of the year.

Current Use

The Forks burn grass crop makes excellent range for cattle. Fire-killed snags still stand and allow free movement for cattle. This will change as the snags fall and the lodgepole pine saplings grow up, and start closing off the sunlight. Recreation use remains light with hunting making up most of the use.

Wilderness Resources

The Forks fire and its accompanying firelines and roads carves a big hole out of the middle of the Pebble Creek Roadless Area. Only the Pebble Creek drainage itself remains relatively untouched. Opportunities for solitude within the Area are quite limited. When the adjoining roadless areas are also considered, the opportunities are somewhat improved.

THE SAWTOOTH NO. 820

General Description - The boundaries of the Sawtooth Area were drawn during the North Cascades Study in the late 60's. It is long and narrow, about 30 miles by 5 miles. The Area includes the eastside of Sawtooth Ridge north to Gardner and Silver Star Mountains plus the upper drainage areas of Cedar and Wolf Creeks. Elevations vary from 3000 feet near the Twisp River to the summit of Mt. Gardner nearly 9000 feet high.

Rugged mountains with deep valleys tracked by avalanche paths make up the north part. The southern ridge contains more lakes and meadows and friendlier mountains.

Trails travel up most of the southern drainages. Many trails continue across the Sawtooth Ridge and join trails on the Lake Chelan side. Few trails cross the rugged northern part.

The Forest Service built a number of helispots throughout this area. Most lie in natural openings and do not clash with the country. A number of old mine workings are scattered throughout the Area. Most of the mines were abandoned long ago and now are more picturesque than distracting.

Precipitation varies greatly in the Sawtooth Area. The northern part receives as much as 90 inches annually. Lower elevations further south get about 40 inches of precipitation.

The Sawtooth Area includes 96,500 acres including 100 acres of private land.

The great difference in elevation and precipitation contribute to a large array of inland vegetation with some evidence of the coastal influence. Some mountain hemlock and Pacific silver fir, common on the west side of the Cascades, can be found in the northern part of the Sawtooth Roadless Area.

A great deal of this area falls in the high elevation Alpine and Subalpine Zones. Open meadows and rocky slopes occur at the higher elevations. The Mountain Forest Zone makes up the lower elevations. Even in this zone, great differences in vegetation occur. Avalanche paths extending into the valley floors become a tangle of alder, shrubs, and broken trees. Nearby one can often find good stands of old growth Douglas-fir and ponderosa pine. Large areas of lodgepole pine in the southern part cover both the Mountain Forest and Subalpine Zones. They give evidence to an extensive fire history in the past. Ceanothus replaces lodgepole pine on burns on the lower southern slopes.

Wildlife varies as much as the vegetations. Goats, marmots, pikas and ptarmigan inhabit the higher country. Mule deer range throughout the entire area during the summer. Blue grouse winter in the uppermost timber fringes high on the ridges. Numerous other smaller birds and animals can be found.

A number of cirque lakes dot the higher country. Many contain cutthroat or rainbow trout.

Current Use

Many people find the Sawtooth Area attractive. Many trails, streams, lakes, and outstanding mountain scenery attracts riders, hikers, bikers plus hunters and fishermen. Use is concentrated in the drier southern areas. North of the Twisp River rugged mountains and few trails limit the use to the more hardy.

Grazing allotments cover many parts of the Sawtooth. Two sheep allotments and four cattle allotments lie partly within the Sawtooth Area.

Wilderness Resources

Natural forces are much more evident throughout the Sawtooth than those of human origin. Most of man's developments either serve or are a result of recreation

use. Many trails travel through the Area. Some informal camping spots show signs of very heavy use. The other signs of man's activities, the helispots or the old mining digs are generally inconspicuous and away from normal travelways. The entire area gives an appearance of being changed primarily by the forces of nature.

The Sawtooth Area is a long narrow area which, if considered by itself, might seem to offer limited opportunities for remote recreation. Other roadless areas, either on the Okanogan or Wenatchee National Forests, or the Lake Chelan Recreation Area of the North Cascades National Park, join the Sawtooth on 95% of its boundaries. This total area gives excellent opportunities for solitude.

SHERMAN PEAK NO. 821

General Description - This Area is a long narrow band of roadless land lying along the south ridge of the Pasayten Wilderness. It starts at Last Chance Point and runs to Billy Goat Trailhead. It is a very high area with few spots dropping below 5000 feet. The Lost River Gorge dips down steeply to about 2500 feet. The top of Big Craggy Peak reaches over 8400 feet.

Several man-made developments can be found in the Area. A road with two small clearcuts dating to the early 60's extends past the Roadless Area boundary in upper Whiteface Creek. These were overlooked in the RARE Inventory. Three trails pass through this area and go into the Wilderness. Another trail leads to Copper Glance Lake. The Forest Service located several helispots in open areas near the ridgeline. Prospecting and exploration on mining claims continue in the Area from Copper Glance Lake to Billy Goat Pass. This area totals 12,032 acres of National Forest lands.

Most of this high south facing area lies in Subalpine and Alpine Zones. Open treeless areas occur in any area of shallow soil. The highest rocky peaks are practically void of vegetation. Those higher areas of deeper soils support scattered park-like stands of bushy white bark pine and alpine larch over bunchgrass. Englemann spruce grows near water in the draws. Douglas-fir along with some ponderosa pine can be found on the lower elevations.

Most of the Area provides excellent summer range for deer. Black bear and mountain goats are sometimes spotted. Grouse, both blue and Franklin, are common. One can often see Golden eagles soaring over the ridges. A host of smaller birds and animals occupy habitats suitable for them.

Current Use

While part of two cattle allotments cover the area between Lost River and Sherman Peak, the cattle seem to spend little time in the high roadless country.

Many people pass through the Sherman Peak Area on the trails leading to the Wilderness. Most of the actual recreation use within the Area consists of fishing in Copper Glance Lake and hunting during the fall.

Some light exploration work continues on the mining claims in the Copper Glance-Billy Goat Pass Area.

Wilderness Resources

Most of the Sherman Peak Area shows little sign of man. The overlooked road and clearcuts plus the mining activity are the major exceptions. Roads and logging operations to the south of the area are very apparent from this narrow roadless strip. Although use within the Area remains light, insulation from man's works to the south is poor. One can experience a feeling of solitude only in the upper Panther Creek and in the area west of Big Craggy Peak.

SOUTH RIDGE NO. 822

General Description - The broad low east-west South Ridge makes up most of this Area. Elevations range from 5600 feet on the top of South Ridge to about 3000 feet in Beaver Creek. Range improvements are the sole developments within this Area. They include several water improvements and about a mile of drift fence. The South Fork Beaver Road forms the north boundary. Private land forms the west and part of the south boundaries. Timber harvest areas lie around the rest of the Area.

About 60% of the Area is timber covered northern exposure slopes. Douglas-fir larch, and lodgepole pine are the primary tree species. The rest consists of south facing grass and shrub covered slopes. Some scattered ponderosa pine grow on those areas. A narrow mile-long marshy meadow lies along a tributary of Beaver Creek between Bear Mountain and South Ridge.

South Ridge supports a variety of wildlife species common throughout the general area. Larger animals include mule deer, black bear, coyote and occasionally a cougar. Porcupines, marmots, pine squirrels and other small mammals can be found. Furbearers, mink, weasels and beaver live around the marshy areas. A wide variety of birds, from hawks to hummingbirds live within the Area during certain seasons. The southern slopes support a good population of the Pacific rattlesnake.

Current Use

Cattle grazing is the primary use of this Area now. There are no maintained trails in the Area and hunting is the main recreation activity.

Wilderness Resources

Little changes have taken place inside the Area. Changes outside the Area are very apparent from most vantage points. The entire open south flank looks down to the Methow Valley. Noises from timber harvest operations drift up the north flank.

Chances of meeting anyone except during hunting season would be slight. The feeling of solitude though would be absent.

THIRTYMILE NO. 823

General Description - Thirtymile includes the broad rolling highland and the east wall of the Chewack River Canyon. North Twentymile Peak at over 7400 feet is the Area's high point. The highland benches off at around 6000 feet before plunging directly down into the Chewack. Roads form the boundaries of most of the north, east and west sides. The Twentymile Roadless Area lies to the south.

Twentymile Lookout is the only man-made structure in this Area. Several trails, no longer maintained, cross the Area. The Thirtymile Area totals 21,600 acres of National Forest land.

Dense stands of lodgepole pine cover the most of the upland area. Stringers of Englemann spruce grow along drainages and a few open south slopes occasionally break up the lodgepole pine canopy. Scattered Douglas-fir and ponderosa pine cling to the walls of the Chewack River Canyon.

Thirtymile meadows provide a habitat change in extensive lodgepole stands of this Roadless Area. In these meadows there are abundant signs of past beaver occupancy. Amphibians like salamanders, newts, toads, and frogs are abundant in these wet meadows. Fur bearing mammals like martin, mink, weasel, and some beaver inhabit the meadows. Red-tailed hawks, Swainson's hawks, marsh hawks, great-horned and long-eared owls hunt in these meadows.

Scattered openings on southerly exposures and small aspen patches provide additional habitat variety for game birds and mammals, songbirds of many species, woodpeckers, etc. These openings and the slopes of North Twentymile Peak provide excellent summer range for mule deer herds.

Steep slopes down to the Chewack River have stands of old growth Douglas-fir. These old growth trees with large deformed tops provide what looks like excellent nesting sites for bald and golden eagles. To date, no one has reported any eagles nesting in this Area.

Current Use

Very little use is now made of the Thirtymile Area. The Forest Service uses the lookout on North Twentymile each summer. There are no maintained trails to encourage recreation use. Dense stands of lodgepole pine make cross-country travel very unattractive.

Wilderness Resource

The Thirtymile Area appears affected mainly by the forces of nature. Only the lookout and several long unmaintained trails show signs of man's present and past use. On the upper highlands, a dense lodgepole pine stand continues monotonously. Few vistas can be found to view the surrounding country. The Chewack River Canyon wall practically eliminates approaching the Thirtymile Area from that direction. Chance of meeting others in the Thirtymile Area are very slight and opportunities for solitude remain excellent.

TIFFANY NO. 824

General Description - The Tiffany Roadless Area encompasses a cluster of mountain peaks in the high ridge dividing the Chewack and Okanogan River drainages. Seven peaks in this area reach up over 7000 feet. Tiffany Mountain is the high point at 8242 feet. A low point of about 4000 feet lies near Salmon Meadows. Three Lakes, Roger, Tiffany and Little Tiffany, are in this area. Small streams radiate in all directions from this group of mountains.

Roads make up the Area's boundaries on all except the east side. There the Forest boundary and upper edges of logging areas mark the Roadless Area boundary. About 400 acres of roadless lands southeast of Muckamuck Mountain were included in the Center Timber Sale sold in May 1972. Center Timber Sale called for partial cutting with access by temporary spur roads. The sale has since been logged and all roads closed.

The Tiffany Area is about 5 miles wide and 8 miles long and totals 25,200 acres. 210 acres are private lands.

All the higher peaks show Alpine Zone characteristics. They're nearly void of trees, supporting only grass and heather. At slightly lower elevations there's white bark pine, lodgepole pine, with Englemann spruce in the wet areas. North facing slopes support dense timber stands with more open areas on the drier southern slopes. The high west side remains primarily in the three former named tree species while Douglas-fir appears in the lower valleys on the east side.

The most outstanding characteristic of the Tiffany Roadless Area is the alpine ecosystem of the mountain peaks and ridges. Certain birds, like the horned lark, prefer this windswept ridge for nesting habitat. Formerly, ptarmigan also nested in the Tiffany Mountain Area. Whistler marmots have been sighted in the rocky slides of Whistler Pass. Yellowbelly marmots and pikas inhabit talus slopes of the Tiffany Area. The alpine ridges and lower elevation sagebrush and bunchgrass openings provide excellent summer range for deer herds. The Tiffany Area supports one of the best black bear populations in the planning unit. Franklin and blue grouse are common in the Area. Woodpeckers and a great variety of songbirds are common throughout the Area. All three lakes have trout populations but Tiffany Lake provides the best fish habitat.

Current Use

Most recreation use occurs around Tiffany Lake. Tiffany is an amazingly fertile lake for such a high elevation at 6500 feet. It produces good catches of trout during its ice-free period. Roger Lake and Little Tiffany Lakes are much smaller, less fertile, and don't give as good fishing.

A 6100 acre roadless management unit was established by the Forest Supervisor during the 60's. The roadless unit and all the trails leading to it are closed to motorized traffic. Roads surround the Tiffany Area and the many trails give easy access into the Area. Day hiking makes up most of the use with very little overnight backpacking. Hikers and riders enjoy Tiffany's open slopes and expansive views. It becomes a popular spot with hunters during the fall.

Four cattle allotments cover the Tiffany Area. The high meadows provide excellent forage. The Bernhardt mine is the only evidence of mining activity.

Wilderness Resources

Man's changes to the Area include fences, trails, helispots, the Bernhardt Mine, and the Center Timber Sale. The timber sale lies in the very southeast part of the Roadless Area. All other changes are local effects and very small when the entire area is viewed. The high mountains of the Tiffany Area are much more gentle than those on the Cascade Crest. Open ridges invite cross-country travel. The same openness limits the number of people that can use the Area in solitude. The many trails give good access and allow one to cross the Area in a day's hike.

TWENTYMILE NO. 825

General Description - A number of high gentle ridges separated by steep, deep canyons make up this Area. North Twentymile Peak at 7437 feet is the high point. The Roadless Area drops down to about 3800 feet in the Chewack River Canyon. The Area drains chiefly into Twentymile and Boulder Creekss and eventually into the Chewack River. Roads 370 and 391 form the Area's east boundary. Thirtymile Roadless Area joins the Twentymile Area at its north boundary. Upper limits of timber harvest areas generally mark the other boundaries.

Developments within the Area include trails 560, 512, 371 and 372. A fence at the lower end of South Twentymile Meadow prevents cattle moving beyond that point. Other signs of man include several helispots and evidence of efforts made to put out fires. The entire 40,600 acre Poadless Area is National Forest land.

Dense stands of lodgepole pine cover most of the higher county. More open timber on drier south slopes and stringer meadows along streams break the otherwise-solid tree canopy. Only at lower elevations do ponderosa pine and Douglas-fir become more common.

North Twentymile and South Twentymile Meadows make an interesting break in the surrounding lodgepole pine. Typically narrow, seldom over 500 feet across, these meadows run along the creeks for over a mile. Wet and spongy underfoot, they are criss-crossed with many open and closed water channels. Sedges, huckleberry, willows carpet the open areas. Englemann spruce form the first line of trees along the meadow fringes.

North and South Twentymile Meadows and tributary stringers attract amphibians, fur bearing mammals, hawks and owls, marsh and water birds, as well as many species of songbirds. An area to the east of South Twentymile meadows has several shallow ponds. Trout can be found in these ponds and occasional waterfowl nesting is observed.

Scattered openings on west and southerly exposures provide excellent summer range for mule deer herds. Old growth Douglas-fir on the eastern slopes of the Chewack River provide what looks like excellent nesting sites for bald and golden eagles. There are no reports of eagle nests in the Area, though.

Current Use

Two active cattle allotments, the Chewack and Tiffany, lie partly in the Twentymile Area. The trails along the water courses attract some people, mainly for hunting and fishing. Casual hiking and backpacking in this area is currently very light, probably discouraged by the rather monotonous lodgepole pine stands.

Wilderness Resources

There's little evidence of man's works within the Twentymile Area. Current use is light because no real recreational focal points lie within the Area. Tangled lodgepole pine stands make cross-country travel slow and unpleasant. Few people enter the Area and opportunities for solitude are good.

TWISP RIVER NO. 826

General Description - The Twisp River Roadless Area takes in the roadless area lands between the earlier identified Sawtooth Area, and developed lands along and south of the Twisp River. This is a long narrow area about 25 miles long and averages two miles wide. Much of the country visible to the south of the Twisp River road lies in this area.

It is typically an area of steep ridges, dividing major creek drainages. Elevations range from about 3000 feet near the Twisp River to 7500 feet on Gilbert Mountain.

Developments include a few helispots plus a number of trails which lead through this area and into the Sawtooth. These trails total about 38 miles in length.

The Twisp River Roadless Area totals 30,800 acres which includes 100 acres of private land.

Vegetation varies greatly because of the great ranges of elevation, aspect, soil, and precipitation. Only small parts of the Area reach up to the Alpine Zone. Most lies in the Mountain Forest Zone. Valley bottoms and north slopes typically support trees. On drier south facing slopes, trees are scattered with grass and shrubs covering the ground.

The Area serves as summer range for mule deer. Other common wildlife include black bear, coyote, bobcat, plus many other smaller birds and animals. The larger streams support native populations of cutthroat trout.

Current Use

Part of two sheep allotments plus one cattle allotment cover parts of this area. Heavy recreation use occurs on the trails leading through this area into the Sawtooth. As with the Sawtooth Area, hikers, bikers, and riders make heavy use of the trails. Hunting and fishing are the most common recreation use away from the travel routes.

Wilderness Resources

Nature causes most of the changes in the Twisp River Area. Man's work consists of the trails and the helispots.

The long narrow shape of this area means developed lands are always nearby. Opportunities for solitude within this area are therefore low. This area adds depth to the Sawtooth and Lake Chelan Roadless Areas to the west.

WOLF CREEK NO. 827

General Description - This area takes in much of the Wolf Creek drainage. It includes all of the North Fork of Wolf Creek plus most of Little Wolf Creek, along with most of the main stem up to the Sawtooth Roadless Area. Roadless Areas join all but Wolf Creek's east boundary. Midnight Mountain lies to the south, the Sawtooth to the west, and Lucky Jim to the north.

Wolf Creek descends gradually in a narrow valley giving the illusion of a nearly level valley floor. The canyon walls pitch abruptly down from sharp ridges 2000 to 3000 feet above. The Wolf Creek trail follows the main drainage up to Gardner Meadows which lies in the Sawtooth Area. Trail 528 gives access into the North Fork drainage. Several helispots on McKinney Mountain and along Virginia Ridge plus an irrigation diversion dam and ditch are the only other developments in this area. The dam, a little over a mile above the Roadless Area boundary channels water into a ditch. This large and very visible ditch carries the water above the creek's south bank down to the Methow Valley.

Elevations range from 2400 feet in Wolf Creek to the 7821 foot Story Peak. The 150 acre Wolf Creek Research Natural Area lies at the very easterly edge of the Roadless Area. The natural area preserves an example of a bitterbrush, bunchgrass, ponderosa pine area.

Most of the Roadless Area falls in the Mountain Forest Zone. Douglas-fir and Englemann spruce are the most common trees. The Pine Forest Zone extends higher than usual on the steep south-southwest facing slopes. Bitterbrush, bunchgrass and widely spaced ponderosa pine occupy those sites.

Mule deer range through the entire Area during the summer. Some deer winter on the steep south-facing slopes that lose their snow quicker than others.

Anadromous fish, salmon and steelhead spawn in the lower part of the main creek. Both the main stream and the North Fork of Wolf Creek also support native trout.

Current Use

Cattle graze through most of the Roadless Area with good range each year. Grazing and the irrigation diversion are the main commercial uses of the Wolf Creek Roadless Area. Recreation attracts most people into the Area. Most of the users are from the local area attracted by the fishing, hunting, scenery and the easy access over the slowly ascending Wolf Creek trail.

Wilderness Resources

Wolf Creek's narrow canyon soon blocks off the sights and sounds of civilization below in the Methow Valley. After passing the diversion dam only the trail gives evidence of man's uses. Adjacent Roadless Areas insulate and increase Wolf Creek's remoteness. If one ventures off the trails, chances of seeing others is very slight. Opportunities for solitude are excellent.

LAKE CREEK (Unnumbered)

General Description - Lake Creek Roadless Area lies along the south boundary of the Pasayten Wilderness. It is nearly eight miles long and averages less than a mile in width. Long Swamp Roadless Area joins it on the east and Disaster Roadless Area on the west side.

Most of the Roadless Area is the steep bluff plunging down from the Pasayten Wilderness to the Chewack River road. A sharp rocky ridge lies between Andrews Creek and Lake Creek on the west side. The Andrews Creek trail leading into the Pasayten Wilderness is the main development. Lake Creek totals 3270 acres of National Forest land.

A few trees cling to the rocky wall lying between Andrews Creek and Thirtymile Camp. Ceanothus and grass cover those areas with soil. Better stands of ponderosa pine and Douglas-fir grow on the ridge between Lake and Andrews Creeks.

Mountain goats often winter on the rocky, windswept, south slopes of the Lake Creek Area. Deer and grouse migrate through the Area between their winter and summer ranges. A number of other birds and animals are permanent or part-time residents of the Area. Andrews Creek maintains a good flow all year and supports some small native trout.

Current Use

Recreation makes up most of man's use of the Lake Creek Area. Most use occurs on the Andrews Creek trail from people entering or leaving the Pasayten Wilderness. Hunters work the country on the west and a few fisherman try their luck in Andrews Creek. The entire Area forms a scenic foreground for travelers along the Chewack River road.

Wilderness Resources

The Lake Creek Roadless Area remains little changed by man. The steep rugged country discourages much on-the-ground use. Most of the Area faces directly down into the Chewack River road offering limited chances for solitude. The Area does add some roadless country to insulate the Pasayten Wilderness beyond.

LAST CHANCE (Unnumbered)

General Description - Last Chance is a steep, narrow southwest facing strip of land that lies between the Harts Pass road and the Pasayten Wilderness. This area is over seven miles long and averages about half a mile wide. Elevations range from

3200 feet near the lower part of the Harts Pass road to a number of points over 7000 feet on the ridge marking the Pasayten Wilderness boundary. This area totals 3410 acres of National Forest land.

Most of the Lake Creek Area falls in the Subalpine Zone. Meadows and brushfield cover most of the southwest facing hillside. Some trees grow on the better sites.

Mule deer and grouse are part-time residents, deer during the summer and grouse during the winter. Mountain goats are often spotted in the high meadow areas. Ptarmigan live along the ridgeline. A number of other birds and animals common to the North Central Cascades can also be found in the Last Chance Area.

Current Use

A sheep allotment covers part of the Last Chance Roadless Area. A large band of sheep grazes through the Area on alternate years. The Last Chance Roadless Area forms a scenic foreground for the Harts Pass road. A fair amount of hunting occurs in the Area during the fall.

Wilderness Resources

Nature causes most of the changes in the Last Chance Area. Avalanches tear paths down the steep hillsides. Red topped trees mark insect attacks. Man's marks are virtually unnoticed when compared to natures.

Because of its narrow width and the fact that it looks down the Harts Pass road, the Last Chance Area offers little opportunity for solitude. It does add a roadless buffer area to the Pasayten Wilderness to the east.

CANYON CREEK (Unnumbered)

General Description - Canyon Creek Roadless Area joins the Pasayten Wilderness in the upper Canyon Creek drainage. The Area itself drains either to Slate Creek or directly to Canyon Creek. Elevation ranges from 3000 feet in Canyon Creek to 7290 feet on the top of Tamarack Peak.

Chancellor Road forms the south boundary and provides major access to the Area. About 1/2 mile of Pacific Crest Trail passes through the northeast corner of Canyon Creek Roadless Area. Roads built to access mining claims in the Barron Area form the south and east boundaries.

This is an Area with fairly high precipitation. About 60 to 70 inches fall each year, mainly as snow. Snow endures until summer giving a short growing season. Subalpine and Alpine Zones occupy most of the Area. Meadows cover the higher elevations and extend far down the south and west facing slopes. Timber grows on the lower, more fertile sites, with Douglas-fir, subalpine fir and Englemann spruce the most common trees.

Mule deer, black bear, blue grouse are the most common game species. Other wildlife include whistling marmot, pika, and ptarmigan at high elevations.

Appendix J

Furbearers, mink, beaver and otter live along Canyon Creek. The small predators, coyote and bobcat, occur throughout the Area.

Canyon Creek supports a good population of trout, mainly rainbow, cutthroat and dolly varden.

Current Use

The Canyon Creek Roadless Area lies near the heavily prospected and mined Barron Area. A considerable amount of prospecting continues in parts of the Roadless Area. The Area is also the foreground for travelers along the Chancellor Road.

Much of the recreation use occurs in the short stretch of the Pacific Crest Trail that passes through this area. Some people fish Canyon Creek above the Chancellor Campground and hunting attracts others in the fall. Canyon Creek itself offers a little color to those trying their hand at panning gold.

Wilderness Resources

One can find a number of prospecting holes where miners have searched for the mother lode throughout this area. Most of this prospecting is inconspicuous and does not distract from the Area. Few other signs of man can be found. One can often see man's works in nearby areas. Either the Chancellor Road or the private mining roads, can be seen from the open south and west slopes. Few people enter upper Canyon Creek canyon. With the Pasayten Wilderness Area on both sides, this Area offers excellent opportunities for solitude.

BIBLIOGRAPHY

- 1/ Spawning Areas and Abundance of Chinook Salmon (*Oncorhynchus tshawytscha*) in the Columbia River--Past and Present, Fish and Wildlife Service, USDI, 1968, P.R.
- 2/ BOLSINGER, Charles L.; Forest Resource and the Timber Economy of Okanogan County, Washington; Unpublished Report Draft, 1974.
- 3/ MOEN, Wayne S.; Mineral Exploration in Washington During 1974. Paper presented to 80th Annual Convention of Northwest Mining Association, Spokane, Washington, December 6 and 7, 1974.
- 4/ Letter of 2/5/75 to A. Olson, Okanogan County Planner, from K. W. Livingston.
- 5/ Wilderness Resource Management Plan for the Pasayten Wilderness, 1974.
- 6/ LICHTENBERG, A.J. and MAKHIJANI, A.B.; Energy and Well Being. Environment Volume 14, No. 5, June 1972.
- 7/ Okanogan National Forest Timber Management Plan, Revised 1/30/75.
- 8/ Processes, Procedures and Methods to Control Pollution Resulting from Silvicultural Activities, U.S. Environmental Protection Agency. 1973.

OTHER REFERENCES

- BARKSDALE, Julian D.; Geologic Map of Parts of Methow and Okanogan Quadrangles, Washington; Unpublished Report, 1969.
- BENT, Arthur Cleaveland; 1919-1929. Life Histories of North American Birds. A Series.
- BURT, W.H. and GROSSENHEIDER, R.P.; 1964. A Field Guide to the Mammals. A Peterson Field Guide.
- CAMPBELL, Charles D.; Introduction to Washington Geology and Resources; Washington Department of Conservation, Information Circular No. 22R, 1962.
- DALQUIST, W.W.; 1948. Mammals of Washington. University of Kansas Publication. Museum of Natural History; 2:1-444.
- GILSTROM, Jon; 1974. Fish and Wildlife Step I and Step II Papers for the Okanogan-Methow River Basin Study.
- HARRISON, E.J. and SONNENBURG, K.G.; 1968. Washington Birds, Their Location and Identification. The Seattle Audubon Society.
- LIVINGSTON, Jr., Vaughn E.; Geologic History and Rocks and Minerals of Washington; Washington Department of Natural Resources, Information Circular No. 45; 1969.
- PETERSON, Roger Tory; 1964. A Field Guide to Western Birds.

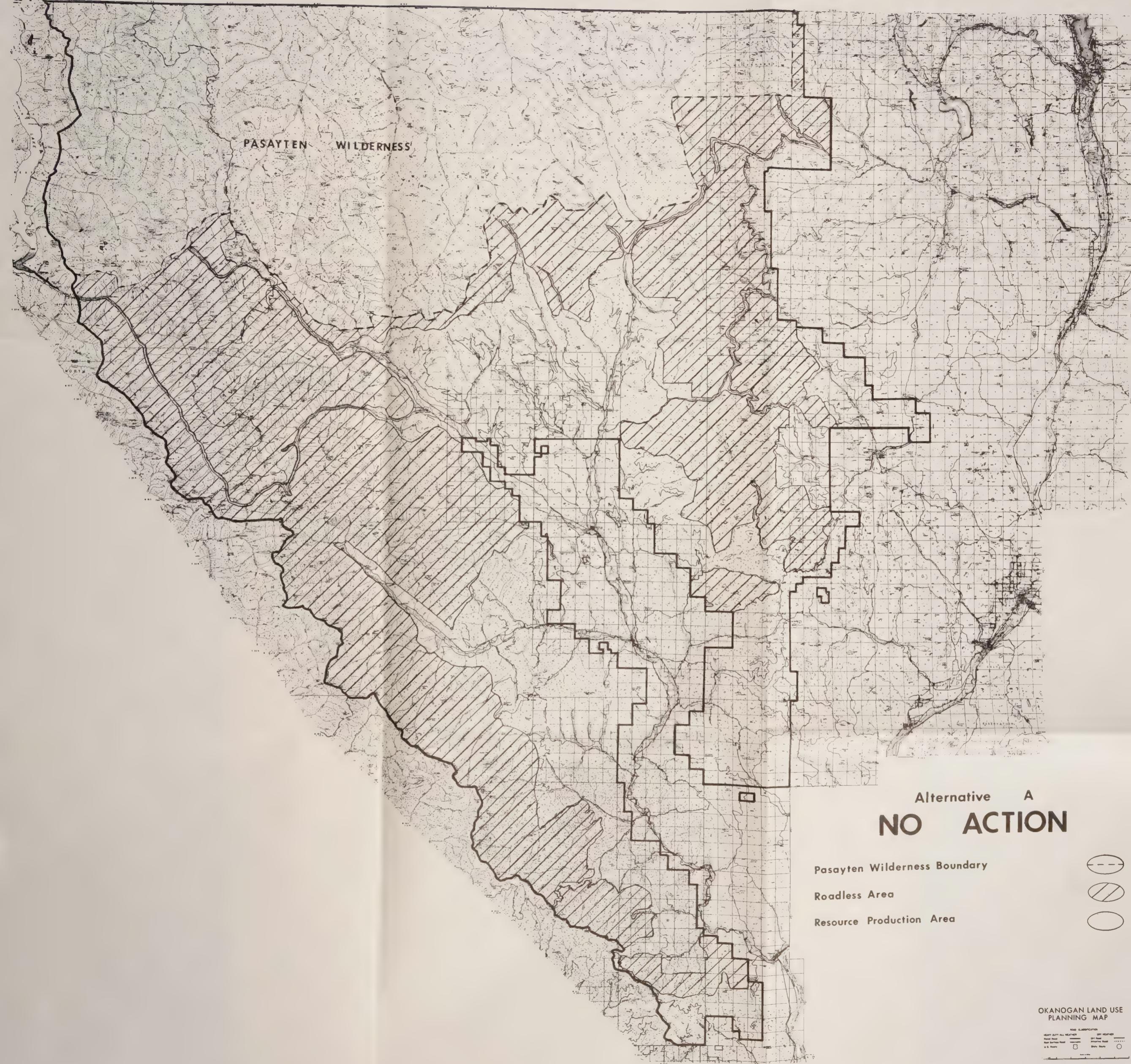
STAATZ, M.H., et al; Mineral Resources of the Pasayten Wilderness Area, Washington;
U.S. Geologic Survey, Bulletin 1325; 1971.

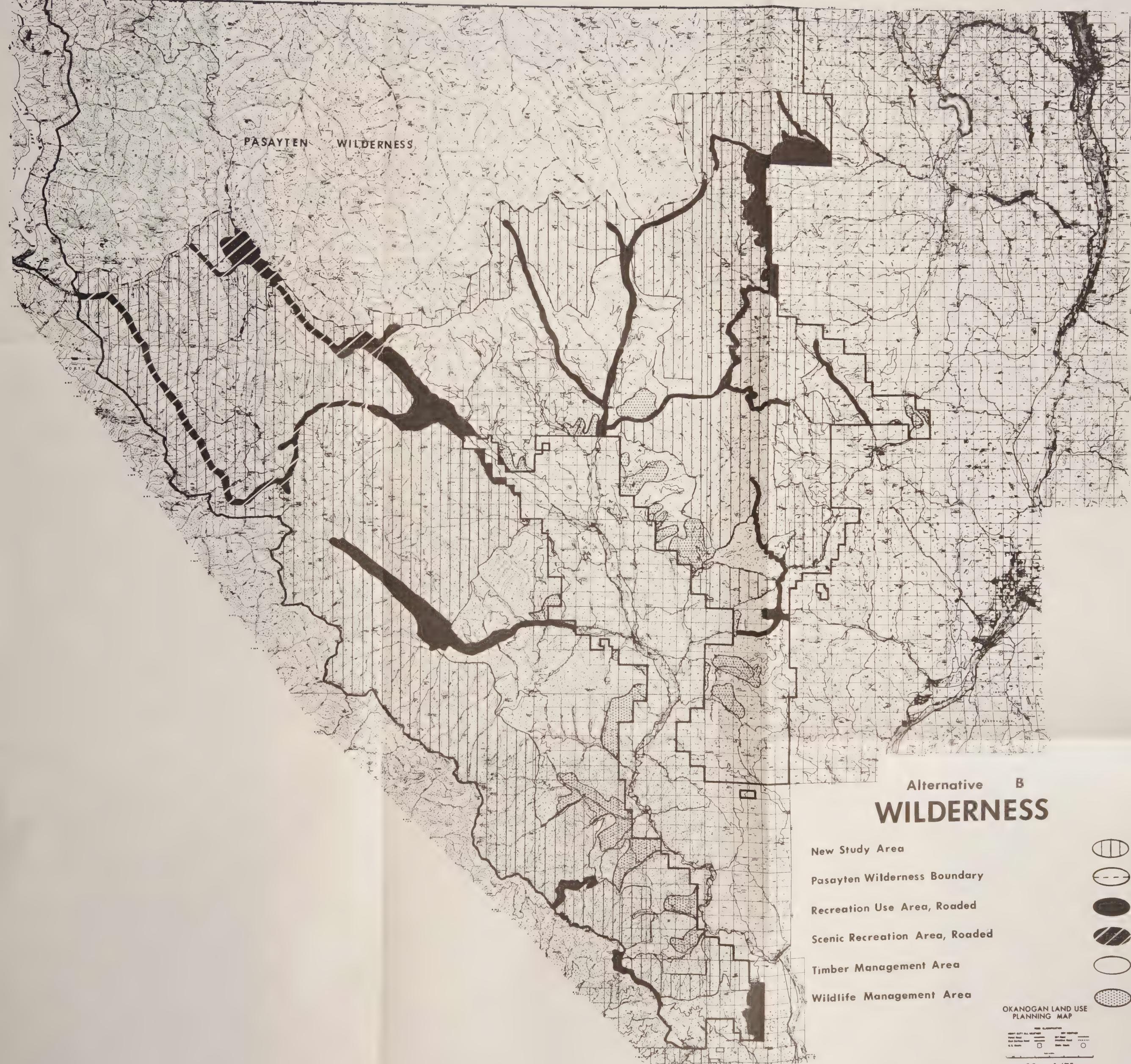
Timber Management Plan, Okanogan National Forest, 1969.

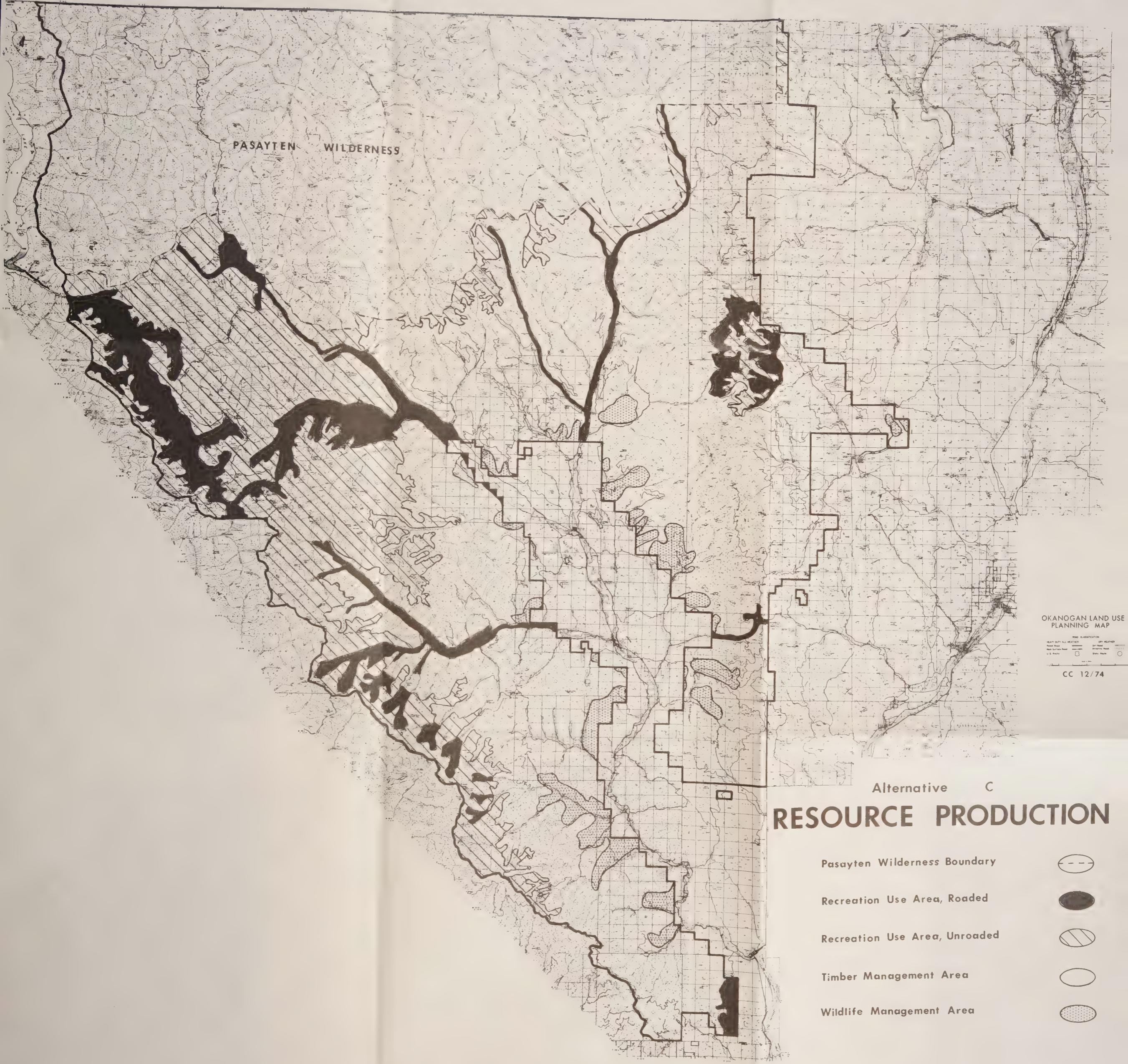
WALTERS, Kenneth L., and NASSAR, E.G., Water in the Methow River Basin, Washington,
State of Washington Water Supply Bulletin No. 38.

Weather Service, U.S. Department of Commerce, Climatic Summaries of the United
States; Washington, 1931-1952 and 1951-1960.

; Geologic Map of Washington; Washington Department
of Natural Resources; 1:500,000; 1961.









Alternative D

PROPOSED ACTION

- New Study Area
 - Pasayten Wilderness Boundary
 - Recreation Use Area, Roaded
 - Recreation Use Area, Unroaded
 - Scenic Area, koaded
 - Scenic Area, Unroaded
 - Timber Management Area
 - Watershed Area
 - Wildlife Management Area

OKANOGAN LAND USE PLANNING MAP

The diagram illustrates various road types and weather conditions. It includes labels for 'HEAVY DUTY ALL WEATHER' and 'DRY WEATHER'. Under 'DRY WEATHER', there are three categories: 'Paved Road' (represented by a solid black bar), 'Rock Surface Road' (represented by a dashed line), and 'U.S. Roads' (represented by a solid grey bar). To the right of these are two additional categories: 'Dry Roads' (represented by a solid grey circle) and 'Water Roads' (represented by an open circle).

